

TABLE I.

OF THE

ANATOMY OF THE HUMAN BODY,

VIEWED ANTERIORLY.

THE FIRST ANATOMICAL TABLE OF THE SKELETON OF THE HUMAN
BODY EXPLAINED.

The Bones in the Head viewed anteriorly.

a, bb, cc, dd, f, THE os frontis, or forehead bone; *b*, a small hole which transmits an artery and a nerve out of the orbit to the frontal muscle; *c*, a suture which joins the frontal bone with the zygomatic or jugal process of the temporal bone; *d*, the coronal suture, where it forms a squamose suture, common to the frontal bone, with the temporal bone; *f*, a suture common to the frontal and nasal bone.

h, i, The vertical, or parietal bone; *i*, a squamose suture common to the parietal bone with the temporal bone.

s, u, Os temporis, or temporal bone; *u*, the mamillary process.

w, x, y, z, Os sphenoides, or multiform bone, or bone of the palate; *w, x*, the orbitary process; *w*, a suture common to it, with the frontal bone in the orbit of the eye; *x*, a suture common to this bone, with the os jugale, or cheek bone, at the bottom of the orbit of the eye; *y, z*, the largest lateral process of the os sphenoides; *y*, a squamose

B

suture

suture common to this bone, with the os squamosum, or temporal bone; *z*, a suture common to this bone, and the os jugale, or cheek bone.

1, 2, Os unguis; 1, a small protuberance, or roughness, from whence arises the orbicular muscle of the eye-lid; 2, a sinus, or cavity, belonging to the nasal canal.

7, 8, 9, 10, Os jugale, or cheek bone; 8, 9, a suture formed by the union of this bone with the upper jaw bone; 10, a suture formed by the union of the orbitary part of this bone with the os unguis.

11, 12, 13, 14, Os maxillæ superioris, or the upper jaw bone; 12, the foramen, or hole of the channel, which passes along the bottom of the orbit of the eye; 13, a suture common to this bone with the os nasi; 14, a suture common to the upper jaw bone.

16, Os nasi.

17 17, 18, 19, 20, The lower mandible, or lower jaw bone; at 17 17, are marked roughnesses, from which arise the tendinous parts of the masseter; 18, a hole, out of which pass a nerve of the fifth pair, and blood-vessels to the chin; 19, the coronal or acute process; 20, its condyle, or head, by which it is articulated with the temporal bone.

The Vertebrae of the Neck viewed anteriorly.

The first vertebra is not seen in this Table.

f, i, The epistrophæus, or second vertebra of the neck; *f*, the inferior part of the body, which receives and is sustained by the third vertebra of the neck; the superior part of its body, is received by and sustains the atlas, or first vertebra of the neck; *i*, the transverse process.

p, q, r, s, t, w, The third vertebra of the neck; *p*, the superior part of the body of this vertebra, which is received into the inferior part of the body of the second vertebra; and *q* is the inferior, which receives the superior part of the body of the fourth vertebra; *r*, the transverse process; *s*, the upper oblique process; *t*, the lower oblique process;



process; *w*, the transverse hole, through which the vertebral arteries and veins of the neck pass.

N. B. This explanation may serve for the fourth, fifth, sixth, and seventh vertebræ of the neck.

A continuation of the Bones of the Spine from the Neck, viewed anteriorly.

b, The transverse process of the first or uppermost vertebra of the back.

11, 12, *a a*, The bodies of the two lowest vertebræ of the back.

A, B, C, D, E, The five vertebræ of the loins.

a, b, c, d, f, The fourth vertebra of the loins; *a*, the body; *b*, the transverse process; *c*, the upper oblique process; *d*, the lower oblique process; *f*, the ligament interposed betwixt the bodies of the fourth and fifth vertebræ of the loins.

N. B. This explanation may serve for all the vertebræ of the back and loins.

g g g g g, h h h h h, k k k k k, The os sacrum, or great bone of the spine; *g g g g g*, the anterior part, or body of this bone, which in young animals is divided into as many bodies as there are spines in this bone, it being then like five vertebræ, whose transverse processes make the unequal rough parts *h h h h h* of that bone; *k k k k k*, the anterior holes, which transmit the nerves on each side.

n, o, The upper part of the first bone of the coccyx or tail; *o*, the transverse process.

r, The ligament interposed betwixt the os sacrum and coccyx, tying them together.

The bones of the coccyx, or tail, are four or five.

TABLE I.—OF THE ANATOMY OF THE

The Bones in the Thorax and Shoulder-blades, viewed anteriorly.

a a, b b, B, the sternum, or breast bone; *a a*, the bony parts; *b b*, the ligament by which the bones are connected together; *B*, cartilago ensiformis; this is entirely cartilaginous in young subjects, but in an advanced age it generally ossifies, either wholly or in part.

1, c, d, e, The first rib; *c*, the head, by which it is articulated with the transverse process of the first or uppermost vertebra of the back; *d*, the anterior part of the said head, by which it is connected to the bodies of the seventh vertebra of the neck, and first of the back; *e*, the cartilaginous end, by which it is continued to the sternum.

This explanation will serve for the rest of the ribs; but it is to be observed, that the right superior ribs only are connected to the sternum, and called true ribs; the others are called false ribs.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, &c. show the external and internal sides of the ribs.

f, g, h, i, k, ll, n n, The inner side of the scapula, or shoulder-blade; *h*, its neck; *i*, its spine; *k*, the coracoid process, or epiphysis; *ll*, its inferior costa; *n n*, its basis.

o, p, The clavicle, or collar-bone; *o*, the head which is connected to the sternum; *p*, the head connected to the upper process of the scapula; at *q* and *r*, cartilages are interposed.

The Bones in the Upper Limb, or Extremity, viewed anteriorly.

a, b, c, d, h, i, k, l, m, n, The humerus, or bone of the arm; *a* denotes a protuberance, where the deltoide muscle is inserted; *b* denotes a protuberance, into which the teres minor is inserted; *c, d, h*, the upper head; *c*, the greater unequal protuberance in the upper head of this bone; *d*, the less unequal protuberance; (these protuberances form a sinure, or groove, which serves to confine the tendon of the longer head of the biceps muscle from slipping sideways); *h*, the part of the head which is joined to the cavity of the scapula, covered with
a smooth

a smooth cartilaginous crust; *i*, the external condyle of the lower head; *kk*, the parts of this head covered with a smooth cartilaginous crust, with which the radius and ulna are articulated; *k*, the round articular eminence; *k*, the double articular eminence; *l*, the anterior fossula, or sinus, that receives the upper head of the radius, when the cubit is bent as much as it can be; *m*, the internal condyle of the lower head.

n, o, p, q, The radius; *n*, the upper head; *o*, a protuberance, into which the tendons of the biceps muscle of the arm, and brachialis, are inserted; *p, q*, the lower head of this bone; *p*, denotes a sinus, or groove, through which go the tendons of the extensors carpi radialis; *q*, a sinus, through which goes the tendon of the extensor digitorum communis.

r, s, t, u, The ulna; *r, s*, the upper head, which articulates with the humerus; *t, u*, the lower head, which articulates with the carpus; *u*, the styloide, or pointed process in the lower head of the ulna, which forms a sinus, through which goes the tendon of the extensor minimi digiti.

w, x, y, 1, 2, 3, 4, 5, The bones of the carpus; *w*, the os saphoides, or naviculare; *x*, os lunare; *y*, os cuneiform; *1*, os trapezium; *2*, os trapezoides cubical, or least of the multangular bones of the wrist; *3*, os magnum, or the great round-headed bone of the wrist; *4*, the unciform, or hook-like bone of the wrist.

1, 2, 3, 4, 5, 6, 7, 8, The bones of the metacarpus; *1, 2*, the first bone of the metacarpus, which belongs to the fore-finger or index; *1*, the upper head, by which it articulates with the os trapezoid of the carpus; *2*, the lower head incrustated with a smooth cartilage; *3, 4*, the second bone of the metacarpus, which belongs to the second or middle finger; *3*, the upper head, by which it is articulated with the os magnum of the carpus; *4*, the lower head incrustated with a smooth cartilage; *5, 6*, the third bone of the metacarpus, which belongs to the third or ring finger; *5*, the upper head, by which it articulates with the carpus; *6*, the lower head incrustated with a smooth cartilage; *7, 8*, the fourth bone of the metacarpus, which belongs to the fourth or little finger; *7*, the upper head, by which it articulates with the unciform bone of the carpus; *8*, the lower head incrustated with a smooth cartilage.

11, Two sesamoid bones, which are always to be found in this joint of the thumb.

12, 13, The bone of the first phalanx of the thumb; 12, the upper head, which articulates with the os trapezium of the carpus; 13, the lower head incrustated with a smooth cartilage.

14, 15, The bone of the second phalanx of the thumb; 14, the upper head, which articulates with the first phalanx of the thumb; 15, the lower head incrustated with a smooth cartilage.

16, 17, The bone of the third phalanx of the thumb; 16, the upper head, which articulates with the second phalanx of the thumb; 17, the part which sustains the nail.

20, 21, &c. The bones of the first phalanx of the finger; 20, &c. the upper heads, which articulate with the bones of the metacarpus; 21, &c. the lower heads.

22, 23, &c. The bones of the second phalanx of the fingers; 22, &c. the upper heads, which articulate with the bones of the first phalanx of the fingers; 23, &c. the lower heads.

24, 25, &c. The bones of the third phalanx of the fingers; 24, &c. the upper heads, which articulate with the bones of the second phalanx of the fingers; 25, &c. the parts which sustain the nails.

The Bones in the Pulvis viewed anteriorly.

a, b, c, d, e, f, hh, i k, ll, rr, ss, Os innominatum, or bason bone, including three bones; *a, b, c, d*, the os ilium, hip, or flank bone; *b, c*, the spine; *b*, the anterior part of the spine; *c*, the posterior part; *d*, the protuberance, from which arises the rectus muscle of the leg; *e, f*, the os ischium, or hitch bone; *e*, the acute process; *f*, the tubercle of the ischium; *hh, i*, the os pubis; *i*, the spine or ridge of the os pubis; *k*, the great foramen of the os pubis and ischium; *ll*, the external margin of the acetabulum, or cavity cotyloid; *rr*, the cartilaginous symphysis, which connects the ossa ilium and sacrum together; *ss*, the cartilaginous symphysis, which connects the ossa pubis together.

The

The Bones in the Lower Limb, or Extremity, viewed anteriorly.

a, b, c, d, e, g, h, iii, The os femoris, or thigh bone; *a*, the body, or middle of this bone; *b, c, d, e*, the upper extremity, of which *b* is the neck; *c*, the head incrustated with a smooth cartilage, where it is jointed into the acetabulum; *d*, the great trochanter, or spoke; *e*, the less trochanter; *g, h, iii*, the lower extremity, or head; *g*, the inner condyle; *h*, the outer condyle of the lower head, which at *iii* is covered with a smooth cartilaginous crust.

q, The patella, or knee-pan bone.

s, The inner semi-lunar cartilage, which is interposed in the joint of the knee.

t, The outer semi-lunar cartilage, which is interposed in the joint of the knee.

u, w, x, y, z, The tibia, or great bone of the leg; *u, w*, the upper head; *w*, a protuberance, in which terminates the anterior ligament, which comes from the patella, and ties it to the tibia; *x*, the spine or edge of the tibia; *y, z*, its lower head; *z*, the inner ancle.

1, 2, 3, The fibula, or small bone of the leg; 1, the upper head; 2, the spine, or ridge; 3, the lower head, which makes the outer ancle.

4, 5, 6, The astragalus, or cockal bone; 4, 5, the part which forms a juncture with the bones of the leg, covered with a smooth cartilaginous crust; 6, a smooth cartilaginous crust.

7, 8, The os calcis, or heel-bone; 7, the part that sustains the astragalus.

10, The cubicle bone of the tarsus, or ancle.

11, The navicular bone of the tarsus.

12, The middle cuneiform bone of the tarsus.

13, The less cuneiform bone of the tarsus.

14, The great cuneiform bone of the tarsus.

15, 16, 17, 18, 19, 20, 21, 22, 23, 24, The bones of the metatarsus or instep; 15, 16, the first bone of the metatarsus; 15, the upper head, which articulates with the lower bones of the tarsus; 16, the lower head, in this place covered with a smooth cartilaginous crust, where

it

it articulates with the upper head of the bone of the first phalanx, or order of the great toe; 17, 18, the second bone of the metatarsus; 17, the upper head, which articulates with the bones of the tarsus; 18, the lower head covered with a smooth cartilage, in this place, where it articulates with the first phalanx of the small toes; 19, 20, the third bone of the metatarsus; 19, the upper head, which articulates with the lower bones of the tarsus; 20, the lower head covered with a smooth cartilage, in this place, where it articulates with the first phalanx of the small toes; 21, 22, the fourth bone of the metatarsus; 21, the upper head, which articulates with the lower bones of the tarsus; 22, the lower head, covered with a smooth cartilage, in this place, where it articulates with the first phalanx of the small toes; 23, 24, the fifth bone of the metatarsus; 23, the upper head, which articulates with the lower bones of the tarsus; 24, the lower head covered with a smooth cartilage, in this place, where it articulates with the first phalanx of the small toes.

25, The outer sesamoide bone, placed at the joint of the great toe, with its metatarsal bone.

26, 27, The first bone of the great toe; 26, the upper head, which articulates with the first bone of the metatarsus; 27, the lower head incrustated with a smooth cartilage.

28, 29, The second bone of the great toe; 28, the upper head, which articulates with the first bone of the great toe; 29, the part which sustains the nail.

30, 31, &c. The bones of the first phalanx, or order of bones in the four small toes; 30, &c. the upper heads, which articulate with the bones of the metatarsus; 31, &c. the lower heads incrustated with smooth cartilages.

32, 33, &c. The bones of the second phalanx, or order of bones in the four small toes; 32, &c. the upper heads, which articulate with the bones of the first phalanx; 33, &c. the lower heads incrustated with smooth cartilages.

34, 35, &c. The bones of the third phalanx, or order of bones in the four small toes; 34, &c. the upper heads, which articulate with the bones of the second phalanx; 35, &c. the parts which sustain the nails.

TABLE

TABLE II.

OF THE

SKELETON OF THE HUMAN BODY,

VIEWED POSTERIORLY.

THE SECOND ANATOMICAL TABLE OF THE SKELETON OF THE HUMAN
BODY EXPLAINED.

The Bones in the Head, viewed posteriorly.

h, i, k, THE vertical or parietal bone; *h*, the sagital or longitudinal suture; *i*, the squamose suture, common to the parietal bone, with the temporal bone; *k*, the lambdoid suture, common to the parietal bone, with the occipital bone.

l, n, o, p, The occipital bone; *n*, the lambdoid suture, common to the occipital bone, with the temporal bone; *o*, a process, which makes a considerable addition to the mammillary process of the temporal bone; *p*, the condiloid process, which is incrustated with a smooth cartilage; *l*, the occipital protuberance.

q, Os jugale, or cheek bone.

r, s, t, u, Os temporis, or temporal bone; *r*, the zygomatic or jugal process of the temporal bone; *t*, the styloide apopysis; *u*, the mammillary process.

6, 7, Maxilla inferior, the lower mandible, or jaw bone; 6, its condyle, or head, that is articulated with the temporal bone.

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The

The Vertebrae of the Neck, viewed posteriorly.

a, b, c, d, e, The atlas, or uppermost vertebra of the neck; *a*, the upper oblique process of this bone, which articulates with the condyloide process of the occipital bone; *b*, the transverse process; *c*, the protuberance, tubercle, or inequality, on the posterior part of this vertebra, which seems to be in the place of a spinal apophysis; *d*, the lower oblique process, which articulates with the second vertebra of the neck; *e*, the transverse hole, through which a nerve and blood-vessels pass.

N. B. This vertebra receives the articulating parts of the occipital bone, as well as the superior articulating part of the second vertebra of the neck; the rest of the vertebrae, in the inferior articulating parts of their bodies, receive the superior articulating parts of the vertebra below, and have their superior articulating parts received by those above. So it is with the back and loins.

i, k, l, m, n, 1, The epistrophæus, or second vertebra of the neck; *i*, the transverse process; *k*, the spinal process; *l*, the lower oblique process, which is covered with a smooth cartilage, and articulates with the upper oblique process of the third vertebra; *m*, the upper oblique process, which is covered with a smooth cartilaginous crust, and articulates with the first vertebra of the neck; *n*, the axis of this vertebra, which, on the anterior side, is covered with a smooth cartilaginous crust, and articulates with the inner side of the body of the atlas; *1*, the transverse hole, through which a nerve and blood-vessels pass.

r, s, t, u, The third vertebra of the neck; *r*, the transverse process; *s*, the upper oblique process, covered with a smooth cartilage, and articulates with the second vertebra; *t*, the lower oblique process, covered with a smooth cartilaginous crust, and articulates with the fourth vertebra; *u*, the spinal process.

N. B. This explanation may serve for the fourth, fifth, sixth, and seventh vertebra of the neck.

A Continuation

A Continuation of the Bones of the Spine from the Neck, viewed posteriorly.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, The twelve vertebræ of the back.

12, *a, b, c, d, e, f*, The twelfth vertebra of the back; *a*, the body; *b*, the transverse process; *c*, the upper oblique process, which is covered with a smooth cartilage, and articulates with the vertebra above it; *d*, the lower oblique process, covered with a smooth cartilage, and articulates with the vertebra below it; *e*, the spinal process; *f*, the ligament interposed betwixt the bodies of the twelfth vertebra of the back and first of the loins.

N. B. This explanation may serve for all the vertebræ of the back.

A, B, C, D, E, The five vertebræ of the loins. The explanation of the twelfth vertebra of the back, will serve for the vertebræ of the loins.

h h h h h, i i i i i, k k k k, m m m m m, n n n, The os sacrum, or great bone of the spine, which, in young animals, is divided into as many bodies, or distinct vertebræ, as there are spines in this bone; *h h h h h*, the part composed of the transverse processes; *i i i i i*, the spinal processes; *k k k k*, the posterior holes, which transmit the nerves on each side; *m m m m m*, the part of this bone made by the union of those parts which were oblique processes, when it was divided into five vertebræ; *n n n*, the cartilaginous symphysis, which connects the os sacrum with the ossa innominata.

n, o, p, q, r, The first bone of the coccyx or tail; *n*, the body; *o*, the transverse process; *p*, the upper oblique process, which articulates with the os sacrum (there is no lower oblique process); *q*, the spine; *r*, the ligament interposed betwixt the bodies of the first and second bones of the tail, tying them together.

The bones of the coccyx, or tail, are four or five.

The Bones in the Thorax and Shoulder-blades, viewed posteriorly.

10, *c, d, e*, The tenth rib; *c*, the head incrustated with a smooth cartilage, by which it is articulated with the transverse process of the tenth vertebra of the back; *e*, the cartilaginous end.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, &c. show the external and internal sides of the ribs.

This explanation will serve for all the ribs; but it is to be observed, that the right superior ribs only are connected by their cartilages to the sternum, and are called true ribs; the four lower are called false ribs.

h, i, ll, m, nn, o, p, q, The scapula, or shoulder-blades; *h*, its neck; *i*, its spine; *ll*, its inferior costa; *m*, its superior costa; *nn*, its basis; *o*, fossa sub-spinalis; *p*, fossa supra-spinalis; *q*, the acromium.

r, The clavicle.

Bones in the Upper Limb or Extremity, viewed posteriorly.

a, b, h, i, ll, m, n, The humerus, or bone of the arm; *a* denotes a protuberance where the deltoide muscle is inserted; *b*, a protuberance, into which the teres minor is inserted; *b, h*, the upper head; *h*, that part of the head which is covered with a smooth cartilaginous crust, and articulates with the scapula; *i*, the external condyle of the lower head; at *ll*, the lower head is covered with a smooth cartilage, where it articulates with the ulna; *m*, the posterior fossula, or sinus, which receives the olecranon of the ulna, when the cubit is extended as much as it can be; *n*, the internal condyle.

o, p, The radius; *o*, the upper head; *p*, the lower head.

s, t, u, The ulna; *s*, the olecranon, or elbow; *t, u*, the lower head; *t*, a sinus, through which goes the tendon of the extensor minimi digiti.

w, x, y, z, 1, 2, 3, 4, 5, The bones of the carpus, or wrist; *w*, os saphoides, or naviculare; *x*, os lunare; *y*, os cuneiform; *z*, os pisiform or orbiculare; *1*, os trapezium, the great trapezium or multangular bone

bone of the wrist; 2, os trapezoid cubical, or least of the multangular bones of the wrist; 3, os magnum, or the great round-headed bone of the wrist; 4, 5, the unciform, or hook-like bone of the wrist; 5, the unciform process.

1, 2, 3, 4, 5, 6, 7, 8, The bones of the metacarpus: 1, 2, the first bone of the metacarpus, which belongs to the fore finger or index; 1, the upper head, by which it articulates with the os trapezoid of the carpus; 2, the lower head, incrustated in this place with a smooth cartilage: 3, 4, the second bone of the metacarpus, which belongs to the second or middle finger; 3, the upper head, by which it articulates with the os magnum of the carpus; 4, the lower head, incrustated in this place with a smooth cartilage: 5, 6, the third bone of the metacarpus, which belongs to the third or ring finger; 5, the upper head, by which it articulates with the unciform bone of the carpus; 6, the lower head, incrustated in this place with a smooth cartilage: 7, 8, the fourth bone of the metacarpus, which belongs to the fourth or little finger; 7, the upper head, by which it articulates with the unciform bone of the carpus; 8, the lower head, incrustated in this place with a smooth cartilage.

9, A sesamoid bone at the joint of the index or fore finger.

10, A sesamoid bone at the joint of the little finger.

11, Two sesamoid bones, which are always to be found in this joint of the thumb.

12, 13, The bone of the first phalanx of the thumb: 12, the upper head, which articulates with the os trapezium of the carpus; 13, the lower head, incrustated in this place with a smooth cartilage.

14, 15, The bone of the second phalanx of the thumb: 14, the upper head, which articulates with the first phalanx of the thumb; 15, the lower head, incrustated in this place with a smooth cartilage.

16, 17, The bone of the third phalanx of the thumb: 16, the upper head, which articulates with the second phalanx of the thumb; 17, the part which sustains the nail.

20, 21, &c. The bones of the first phalanx of the fingers: 20, &c. the upper heads, which articulate with the bones of the metacarpus; 21, the lower heads, incrustated in this place with smooth cartilages.

22,

22, 23, &c. The bones of the second phalanx of the fingers: 22, &c. the upper heads, which articulate with the bones of the first phalanx of the fingers; 23, &c. the lower head, incrustated in this place with a smooth cartilage.

24, 25, &c. The bones of the third phalanx of the fingers: 24, &c. the upper heads, which articulate with the bones of the second phalanx of the fingers; 25, &c. the parts which sustain the nails.

The Bones in the Pelvis, viewed posteriorly.

a, b, c, d, e, ff, g, hh, i, k, ll, rr, ss, Os innominatum, or bason-bone, including three bones: *a, b, c, d*, the os ilium, hip or flank bone; *b, c*, the spine; *b*, the anterior part of the spine; *c*, the posterior part; *d*, the protuberance, from which arises the rectus muscle of the leg; *e, f*, the os ischium or hitch-bone; *e*, the acute process; *f*, the tubercle of the ischium; *hh, i*, the os pubis; *k*, the great foramen of the ischium and pubis; *ll*, the external margin of the acetabulum, or cavity cotyloide; *rr*, the cartilaginous symphysis, which connects the ossa ilium and sacrum together; *ss*, the cartilaginous symphysis, which connects the ossa pubis together.

The Bones in the Lower Limb or Extremity, viewed posteriorly.

a, b, c, d, e, f, g, h, i, k, The os femoris, or thigh-bone: *a*, the linea aspera, or roughness; *b, c, d, e*, the upper extremity, of which *b* is the neck; *c*, the head, covered with a smooth cartilaginous crust, where it is jointed into the acetabulum; *d*, the great trochanter, or spoke; *e*, the less trochanter; *f*, a very prominent part of the linea aspera, into which the external glutæus is inserted, along with a part of the fascia lata; *g*, a fossa, or notch, out of and from the borders of which the external head of the gemellus and plantaris muscles arise; *g, h, i, k, l*, the lower extremity; *g, i*, the inner condyle of the lower head; *h, k*, the outer condyle of the lower head; the parts *i, k*, are covered with a smooth

smooth cartilaginous crust, belonging to the joint of the knee; *l*, the fossa or notch betwixt the condyles.

s, The inner semi-lunar cartilage, which is interposed in the joint of the knee.

t, The outer semi-lunar cartilage, which is interposed in the joint of the knee.

u, w, x, y, z, The tibia, or great bone of the leg: *u, w*, the upper head of the tibia; *u*, the internal condyle of the upper head, in this place covered with a smooth cartilaginous crust, belonging to the joint of the knee; *w*, the external condyle of the tibia, in this place covered with a smooth cartilaginous crust, belonging to the joint of the knee; *x*, the middle part, or body of the tibia; *y, z*, the lower extremity, or head; *y*, a sinus, or groove, through which pass the tendons of the tibialis posticus, and long flexor of the toes; *z*, the inner angle.

1, 2, 3, The fibula, or small bone of the leg: 1, the upper extremity or head; 2, the middle portion, or body; 3, the lower extremity, or basis: at 3, is a sinus or notch, through which pass the tendons of the long and short peronæi muscles.

4, 5, 6, The astragalus, or cockal bone: 4, 5, the part which forms a juncture with the bones of the leg, covered with a smooth cartilaginous crust; 6, the body of this bone.

7, 8, 9, The os calcis, or heel-bone: 7, the part that sustains the astragalus; 8, a protuberance, covered in this place with a smooth cartilaginous crust, for the passage of the tendon of the peronæus longus; 9, the tubercle into which is inserted the tendo achillis.

10, Os cuboides, or the cubical bone of the tarsus or ancle.

12, The middle cuneiform bone of the tarsus.

13, The less cuneiform bone of the tarsus.

15, 16, 17, 18, 19, 20, 21, 22, 23, 24, The bones of the metatarsus or instep: 15, 16, the first bone of the metatarsus; 15, the upper head, which articulates with the great cuneiform bone of the tarsus; 16, the lower head, in this place covered with a smooth cartilaginous crust, where it articulates with the upper head of the bone of the first phalanx, or order of the great toe; 17, 18, the second bone of the metatarsus; 17, the upper head, which articulates with the less cuneiform bone

bone of the tarsus; 18, the lower head, covered in this place with a smooth cartilaginous crust, where it articulates with the first phalanx of the small toes; 19, 20, the third bone of the metatarsus; 19, the upper head, which articulates with the middle cuneiform bone of the tarsus; 20, the lower head, in this place covered with a smooth cartilaginous crust, where it articulates with the first phalanx of the small toes; 21, 22, the fourth bone of the metatarsus; 21, the upper head, which articulates with the os cuboides; 22, the lower head, covered in this place with a smooth cartilaginous crust, where it articulates with the first phalanx of the small toes; 23, 24, the fifth bone of the metatarsus; 23, the upper head, which articulates with the os cuboides; 24, the lower head covered in this place with a smooth cartilaginous crust, where it articulates with the first phalanx of the small toes.

25, The inner sesamoide bone, placed at the joint of the great toe, with its metatarsal bone.

26, 27, The first bone of the great toe: 26, the upper head, which articulates with the first bone of the metatarsus; 27, the lower head, incrusted with a smooth cartilage.

28, 29, The second bone of the great toe: 28, the upper head, which articulates with the first bone of the great toe; 29, the part which sustains the nail.

30, 31, &c. The bones of the first phalanx or order of bones in the four small toes: 30, &c. the upper heads, which articulate with the bones of the metatarsus; 31, &c. the lower heads, incrusted with smooth cartilages.

32, 33, &c. The bones of the second phalanx or order of bones in the four small toes: 32, &c. the upper heads, which articulate with the bones of the first phalanx; 33, &c. the lower heads, incrusted with smooth cartilages.

34, 35, &c. The bones of the third phalanx or order of bones in the four small toes: 34, &c. the upper heads, which articulate with the bones of the second phalanx; 35, &c. the parts which sustain the nails.

TABLE

TABLE III.

OF THE

SKELETON OF THE HUMAN BODY,

VIEWED Laterally.

THE THIRD ANATOMICAL TABLE OF THE SKELETON OF THE HUMAN
BODY EXPLAINED.

The Bones of the Head, viewed laterally,

a a a, b, c, d, e, f, g, **T**HE os frontis or forehead bone: *b*, a small hole, which transmits an artery and a nerve out of the orbit to the frontal muscle; *c*, a suture, which joins the frontal bone with the zygomatic or jugal process of the temporal bone: *d, e*, the coronal suture; *d*, a squamose or scale-like suture; *e*, the part of it which makes a serrated or true suture, common to the frontal bone with the parietal bone: *f*, a suture common to the frontal and nasal bones; *g*, a suture common to this bone with the os unguis.

h, i, k, The vertical or parietal bone: *i*, a squamose suture common to the parietal bone with the temporal bone; *k*, the lambdoid suture common to the parietal bone with the occipital bone.

l, p, The occipital bone: *p*, the condiloid process, which is incrustated with a smooth cartilage; *l*, the occipital protuberance.

r, s s, t, u, w, x, Os temporis or temporal bone: *r*, the zygomatic or jugal process of the temporal bone; *t*, the part which articulates
D with

with the lower jaw bone; *u*, the mammillary process; *w*, the bony matus, or entrance of the ear; *x*, a suture common to the cheek bone, with the zygomatic process of the temporal bone.

y, *z*, The largest lateral process of the os sphenoides: *y*, a suture common to it with the os frontis; *z*, a suture common to it with the os temporis.

1, 2, Os unguis: 1, a small protuberance or roughness, from whence arises the orbicular muscle of the eye-lid; 2, a sinus or cavity belonging to the nasal canal.

7, 8, 9, 10, Os jugale or cheek bone; 8, 9, a suture formed by the union of this bone with the upper jaw bone; 10, a suture formed by the union of the orbitary part of this bone with the os unguis.

11, 12, 13, 14, 15, Os maxillæ superioris, or the upper jaw bone; 12, the foramen or hole of the channel which passes along the bottom of the orbit of the eye; 13, a suture common to this bone with the os nasi; 14, a suture common to the upper jaw bones.

16, Os nasi.

17 17, 18, 19, 20, The lower mandible, or jaw bone: at 17 17, are marked roughnesses, from which arise the tendinous parts of the masseter; 18, a hole, out of which pass a nerve of the fifth pair, and blood-vessels to the chin; 19, the coronal, or acute process; 20, its condyle or head, that is articulated with the temporal bone.

21, A moveable cartilaginous plate, which is interposed in the articulation of the lower jaw.

The Vertebrae of the Neck, viewed laterally.

a, *b*, *c*, *d*, *e*, The atlas, or uppermost vertebra: *a*, the body; *b*, the transverse process; *c*, the upper oblique process; *d*, the lower oblique process; *e*, the spinal process; 1, the transverse hole through which a nerve and blood-vessels pass.

N. B. This vertebra receives the articulating part of the occipital bone, as well as the superior articulating part of the second vertebra: the rest of the vertebrae in the inferior articulating parts of their bodies,

bodies, receive the superior articulating parts of the vertebræ below, and have their superior articulating parts received by those above. So it is with the back and loins.

f, g, h, i, k, l, 1, The epistrophæus, or second vertebra of the neck: *f*, the inferior part of the body, which receives and is sustained by the third vertebra of the neck; *g*, the superior part of its body, which is received by and sustains the atlas, or first vertebra of the neck; *h*, the anterior protuberance of the body of this vertebra; *i*, the transverse process; *k*, the spinal process; *l*, the lower oblique process, which is covered with a smooth cartilage: at *1*, is a hole through which the vertebral artery passes; it is called the transverse hole.

o, p, q, r, s, t, u, w, The third vertebra of the neck: *o*, the anterior protuberance of the body of this vertebra; *p* is the superior part of the body of this vertebra, which is received into the inferior part of the body of the second vertebra; and *q* is the inferior which receives the superior part of the fourth vertebra; *r*, the transverse process; *s*, the upper oblique process; *t*, the lower oblique process; *u*, the spinal process; *w*, the transverse holes through which the vertebral arteries and veins of the neck pass.

N. B. This explanation may serve for the fourth, fifth, sixth, and seventh vertebræ of the neck.

A Continuation of the Bones of the Spine from the Neck.

3, a, b, c, d, e, f, The third vertebra of the loins: *a*, the body; *b*, the transverse process; *c*, the upper oblique process; *d*, the lower oblique process; *e*, the spinal process; *f*, the ligament interposed betwixt the bodies of the third and fourth vertebræ of the back.

N. B. The twelve vertebræ, *1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12*, of the back; and *A, B, D, E*, the rest of the vertebræ of the loins, will answer to the explanation of the third vertebra of the loins.

g g, h, i i i, k k k k, The os sacrum, or great bone of the spine: *g g*, the anterior part or body of this bone, which, in young animals, is divided into as many bodies as there are spines, it being then like

five vertebræ, whose transverse processes make the unequal rough part *h*; *iii*, the spine; *kkkk*, the inferior and anterior holes which transmit the nerves on each side. [These holes, both anterior and posterior, answer to those through which are seen, in this Table, the oblique processes of the right side of the vertebræ, both of the neck, back, and loins: the transverse processes of this bone being joined, make two holes, one anterior, the other posterior, of which there is but one in the neck, &c. The transverse processes not being joined, there are sometimes six vertebræ in the os sacrum.]

n, o, p, r, The first bone of the coccyx, or tail: *n*, the body; *o*, the transverse process; *p*, the upper oblique process, which articulates with the os sacrum (there is no lower oblique process); *r*, the ligament interposed betwixt the bodies of the first and second bones of the tail, tying them together.

The bones of the coccyx, or tail, are four or five.

The Bones in the Thorax and Shoulder-blades, viewed laterally.

a a, The sternum, or breast bone.

1, c, d, e, The first rib; *c*, the head, by which it articulates with the transverse process of the first or uppermost vertebra of the back; *d*, the anterior or foremost part of the said head, which is connected to the bodies of the seventh vertebra of the neck, and first of the back; *e*, the cartilaginous end, by which it is continued to the sternum: the eight uppermost are called true ribs.

This explanation will serve for the rest of the ribs; but it is to be observed, that the eight superior ribs only are connected to the sternum; the others are called false ribs.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, show the external side of the ribs on the left side, and internal on the right side.

f, g, The inner side of the right scapula or shoulder-blade.

h, i, ll, m, nn, o, p, q, The left scapula: *h*, its neck; *i*, its spine; *ll*, its inferior costa; *m*, its superior costa; *nn*, its basis; *o*, fossa sub-spinalis; *p*, fossa supra-spinalis; *q*, the acromium.

r, The clavicle.

The

The Bones in the left Upper Limb or Extremity, viewed laterally.

a, b b, c, f, h, i, l, m, n, The humerus or bone of the arm: *a* denotes a protuberance, where the deltoide muscle is inserted; *b* denotes a protuberance into which the teres minor is inserted: *c, f, h*, the upper head; *c, f*, two protuberances which form a groove which is pretty deep; it serves to confine the head of the biceps muscle; *h*, the part of the head which is joined to the cavity of the scapula, covered with a smooth cartilaginous crust: *i*, the external condyle of the lower head; *k*, the head, covered with a smooth cartilage, with which the radius is articulated; *m*, the posterior sinus, which receives the olecranon of the ulna when the cubit is extended as much as it can be; *l*, the internal condyle.

n, o, p, q, The radius: *n*, the upper head; *o*, a protuberance into which the tendon of the biceps muscle of the arm and brachialis are inserted: *p, q*, the lower head of this bone; *p*, denotes a sinus or groove through which goes the tendon of the extensor carpi radialis; *q*, a sinus, through which goes the tendon of the extensor digitorum communis.

r, s, t t, u, The ulna; *s*, the olecranon, or elbow; *t t*, the part which articulates with the humerus; *r, u*, the lower head; *r*, a sinus through which goes the tendon of the extensor minimi digiti.

w, x, y, z, A, B, C, The bones of the carpus: *w*, os saphoides or naviculare; *x*, os lunare; *y*, os cuneiforme; *z*, os pisiforme or orbiculare; *A*, os trapezoid, cubical, or least of the multangular bones of the wrist; *B*, os magnum, or the great round-headed bone of the wrist; *C*, the unciform or hook-like bone of the wrist.

1, 2, 3, 4, 5, 6, 7, 8, The bones of the metacarpus: 1, 2, the first bone of the metacarpus, which belongs to the fore finger or index; 1, the upper head, by which it is articulated with the os trapezoid of the carpus; 2, the lower head, incrustated with a smooth cartilage: 3, 4, the second bone of the metacarpus, which belongs to the second or middle-finger; 3, the upper head, by which it is articulated with the os magnum of the carpus; 4, the lower head, incrustated with a smooth

a smooth cartilage: 5, 6, the third bone of the metacarpus, which belongs to the third or ring finger; 5, the upper head, by which it articulates with the carpus; 6, the lower head, incrustated with a smooth cartilage: 7, 8, the fourth bone of the metacarpus, which belongs to the fourth or little finger; 7, the upper head, by which it articulates with the unciform bone of the carpus; 8, the lower head, incrustated in this place with a smooth cartilage.

12, 13, 14, 15, 16, 17, The three bones of the thumb.

20, 21, A bone of the first phalanx of the fingers: 20, the upper head, by which it articulates with a bone of the metacarpus; 21, the lower head.

22, 23, A bone of the second phalanx of the fingers: 22, the upper head, by which it articulates with a bone of the first phalanx of the fingers; 23, the lower head.

24, 25, A bone of the third phalanx of the fingers: 24, the upper head, by which it articulates with a bone of the second phalanx of the fingers; 25, the part which sustains the nail.

The Bones in the right Upper Limb or Extremity, viewed laterally.

a, l, m, The os humeri: *l*, the internal condyle of the lower head; *m*, the posterior sinus, which receives the olecranon of the ulna when the cubit is extended as much as it can be.

o, p, The radius: *p*, the lower head.

s, t, u, v, The ulna; *s*, the olecranon, or elbow; *tt*, the part which articulates with the humerus; *u, v*, the lower head; *v*, the styloide apophysis of this bone.

w, x, y, z, &, 1, 2, 3, 4, The bones of the carpus: *w*, os sphenoides or naviculare; *x*, os lunare; *y*, os cuneiforme; *z*, os pisiforme or orbiculare; *&*, os trapezium; 1, os trapezoides; 2, os magnum, or the great round-headed bone of the wrist; 3, 4, os unciforme; 4, the unciform process.

1, 2, 3, 4, 5, 6, 7, 8, The bones of the metacarpus: 1, 2, the first bone of the metacarpus, which belongs to the fore finger or index:
1, the

1, the upper head, by which it articulates with the os trapezoid of the carpus; 2, the lower head, incrustated with a smooth cartilage: 3, 4, the second bone of the metacarpus, which belongs to the second or middle finger; 3, the upper head, by which it is articulated with the os magnum of the carpus; 4, the lower head, incrustated with a smooth cartilage; 5, 6, the third bone of the metacarpus, which belongs to the third or ring finger; 5, the upper head, by which it articulates with the carpus; 6, the lower head, incrustated with a smooth cartilage; 7, 8, the fourth bone of the metacarpus, which belongs to the fourth or little finger; 7, the upper head, by which it articulates with the unciform bone of the carpus; 8, the lower head, incrustated in this place with a smooth cartilage.

12, 13, 14, 15, 16, 17, The three bones of the thumb.

10, 11, Two sesamoid bones, which are always to be found in each of these joints of the metacarpus: 10, that which belongs to the index; 11, that which belongs to the little finger.

12, 13, The bone of the first phalanx of the thumb: 12, the upper head, which articulates with the os trapezium of the carpus; 13, the lower head, incrustated with a smooth cartilage. Betwixt 13 and 14, there are always two sesamoid bones to be found in this joint.

14, 15, The bone of the second phalanx of the thumb: 14, the upper head, which articulates with the first phalanx of the thumb; 15, the lower head, incrustated with a smooth cartilage.

16, 17, The bone of the third phalanx of the thumb: 16, the upper head, which articulates with the second phalanx of the thumb; 17, the part which sustains the nail.

18, 19, Two sesamoid bones.

20, 21, 22, 23, 24, 25, The three bones of the fingers. The explanation is absolutely the same with that for the right limb in this Table.

The Bones in the Pelvis, viewed laterally.

a, b, c, d, e, f, hh, ii, ll, The left os innominatum, or bason bone, including three bones: *a, b, c, d*, the os ilium, hip or flank bone; *b, c*, the spine; *b*, the anterior part of the spine; *c*, the posterior part; *d*, the protuberance, from which arises the rectus muscle of the leg; *e, f*, the os ischium, or bitch bone; *e*, the acute process; *f*, the tubercle of the ischium; *h, ii*, the os pubis; *ll*, the external margin of the acetabulum, or cavity cotyloid.

a, b, d, h, ii, The right os innominatum, which will answer to the explanation of the left os innominatum, with this difference only, that this shews the internal view, and the right the external.

The Bones in the Lower Limb or Extremity, viewed laterally.

a, b, c c, d, e, f, g, h, ii, The left femur, or thigh bone: *a*, the body, or middle of this bone; *b, c c, d, e*, the upper extremity, of which *b* is the neck; *c c*, the head, incrusted with a smooth cartilage, where it is jointed into the acetabulum; *d*, the great trochanter, or spoke; *e*, the less trochanter; *f*, a very prominent part of the linea aspera, into which the external glutæus is inserted along with a part of the fascia lata; *g*, a fossa, or notch, out of and from the borders of which the external head of the gemellus and the plantaris muscles, arise; *h, ii*, the lower extremity; *h*, the outer condyle of the lower head, which at *ii* is covered with a smooth cartilaginous crust.

i, k, l, m, n, o, p p, The right femur or thigh bone: *i*, the head; *l*, the less trochanter; *m*, a roughness, from which arises the internal head of the gemellus; *n*, the internal condyle; *o*, the outer condyle; *o, p p*, the smooth cartilaginous crust which covers the part of this lower head, where it is jointed to the tibia and patella.

q q, r, The patellæ, or knee-pans bones; *r*, that part which is covered with a cartilaginous crust, and forms part of the joint of the knee.

ss, The inner semi-lunar cartilages, which are interposed in the joints of the knees.

tt, The outer semi-lunar cartilages in the joints of the knees.

u, v, w, y, u, v, w, z, The tibiae, or greater bones of the legs: *u*, the upper head; *v*, that part of the upper head which, belonging to the joint of the knee, is covered with a smooth cartilaginous crust; *w*, a protuberance, in which terminates the anterior ligament, which comes from the patella and ties it to the tibia; *y*, the lower head of the right tibia; *z*, the lower head of the left tibia.

1, 2, 3, 3, The fibulae, or small bones of the legs: *1*, the upper head; *2*, the lower head, or extremity, which articulates with the bones of the tarsus.

4, 5, 6, 4, 5, 6, The astragali, or cockal bones: *4, 5*, the part which forms a juncture with the bone of the leg, covered with a smooth cartilaginous crust; *6*, a cartilaginous crust covering its fore or anterior part.

7, 8, 9, 7, 8, 9, The calcanei, or heel-bones: *8*, the projecting part that sustains the astragalus; *9*, the tubercle into which is inserted the tendo achillis.

10, The cubicle bone of the tarsus, or ancle.

11, 11, The navicular bones of the tarsus.

12, 12, The middle cuneiform bones of the tarsus.

13, The less cuneiform bone of the tarsus.

14, 14, The great cuneiform bones of the tarsus.

15, 16, 17, 18, 19, 20, 21, 22, 23, 24, The bones of the metatarsus or instep: *15, 16*, the fifth bone of the metatarsus; *15*, the upper head, which articulates with the lower bones of the tarsus; *16*, the lower head, in this place covered with a smooth cartilaginous crust, where it articulates with the upper head of the bone of the first phalanx or order of the little toe: *17, 18*, the fourth bone of the metatarsus; *17*, the upper head, which articulates with the bones of the tarsus; *18*, the lower head, covered with a smooth cartilage in this place, where it articulates with the first phalanx of the small toes: *19, 20*, the third bone of the metatarsus; *19*, the upper head, which articulates with the lower bones of the tarsus; *20*, the lower head, covered with a

E

smooth

smooth cartilage in this place, where it articulates with the first phalanx of the small toes: 21, 22, the second bone of the metatarsus; 21, the upper head, which articulates with the lower bones of the tarsus; 22, the lower head, covered with a smooth cartilage in this place, where it articulates with the first phalanx of the small toes: 23, 24, the first bone of the metatarsus; 23, the upper head, which articulates with the lower bones of the tarsus; 24, the lower head, covered with a smooth cartilage in this place, where it articulates with the first bone of the great toe.

25, The inner sesamoide bone, placed at the joint of the great toe, with its metatarsal bone.

26, 27, The first bone of the great toe: 26, the upper head, which articulates with the first bone of the metatarsus; 27, the lower head, incrustated with a smooth cartilage.

28, 29, The second bone of the great toe: 28, the upper head, which articulates with the first bone of the great toe; 29, the part which sustains the nail.

30, 31, &c. The bones of the first phalanx, or order of bones in the four small toes; 30, &c. the upper heads, which articulate with the bones of the metatarsus; 31, &c. the lower heads, incrustated with smooth cartilages.

32, 33, &c. The bones of the second phalanx or order of bones in the four small toes; 32, &c. the upper heads, which articulate with the bones of the first phalanx; 33, &c. the lower heads, incrustated with smooth cartilages.

34, 35, &c. The bones of the third phalanx or order of bones in the four small toes; 34, &c. the upper heads, which articulate with the bones of the second phalanx; 35, &c. the parts which sustain the nails.

TABLE IV.
OF THE
SKELETON OF THE BODY OF A TIGER,
VIEWED Laterally.

THE FIRST ANATOMICAL TABLE OF THE SKELETON OF THE BODY OF
A TIGER EXPLAINED.

The Bones in the Head, viewed laterally.

a a a, c, d, e, f, g, THE os frontis, or forehead bone: *c*, a suture which joins the frontal bone with the zygomatic or jugal process of the temporal bone: *d, e*, the coronal suture; *d*, a squamose or scale-like suture; *e*, the part of it which makes a serrated or true suture, common to the frontal and parietal bone; *f*, a suture common to the frontal and nasal bones; *g*, a suture common to this bone with the os unguis.

h, i, k, The vertical or parietal bone; *i*, a squamose suture, common to the parietal bone with the temporal bone.

l, m, n, o, p, The occipital bone: *l*, the occipital protuberance, which in this animal is very large, together with the internal spine or protuberance, which, directly opposite to this, makes a strong body of bone; [betwixt *m* and *n* is a suture, which in young tigers is easily separated, but afterwards becomes firmly united;] *o*, a process which makes a considerable addition to the mammillary process of the temporal bone; *p*, the condyloid process, which is incrustated with a smooth cartilage.

r, t, u, w, x, Os temporis, or the temporal bone: *r*, the zygomatic or jugal process of the temporal bone; *t*, the part which articulates with the lower jaw bone; *u, w*, a part which, in young tigers, may be easily divided, but afterwards becomes firmly united (it is distinguished by the name of os petrosa, or apophysis petrosa); *u*, the mammillary process; *w*, the bony meatus, or entrance of the ear; *x*, a suture common to the cheek bone, with the zygomatic process of the temporal bone.

1, 2, 3, 5, 6, Os unguis: 1, a small protuberance, or roughness, from whence arises the orbicular muscle of the eye-lid; 2, a sinus or cavity belonging to the nasal canal; 3, a suture common to this bone, with the cheek bone; 5, a suture common to this bone with the forehead; 6, a suture common to this bone with the upper jaw bone.

7, 8, 9, 10, Os jugale, or cheek bone: 8, 9, a suture formed by the union of this bone with the upper jaw bone; 10, a suture formed by the union of the orbitary part of this bone with the os unguis.

11, 11, 12, 13, 14, 15, Os maxillæ superioris, or the upper jaw bone: 12, the foramen, or hole of the channel, which passes along the bottom of the orbit of the eye; 13, a suture common to this bone with the bone of the nose; 14, a suture common to the anterior part of this bone, 15, and the posterior part 11, 12, 13.

16, Os nasi.

17 17, 18, 19, 19, 20, The lower mandible, or jaw bone: at 17 17, are marked roughnesses, from which arise the tendinous parts of the masseter; 18, a hole, out of which passes a nerve of the fifth pair, and blood-vessels to the chin; 19, 19, the coronal or acute process; 20, its condyle, or head, that is joined with the temporal bone.

21, A moveable cartilaginous plate, which is interposed in the articulation of the lower jaw.

The Vertebrae of the Neck, viewed laterally.

a, b, c, d, e, 1, The atlas or uppermost vertebra of the neck: *a*, the body; *b*, the transverse process; *c*, the upper oblique process, which articulates with the condyloid process of the occipital bone; *e*, the spinal process; *1*, the transverse hole through which a nerve and blood-vessels pass.

N. B. This vertebra receives the articulating part of the occipital bone, as well as the superior articulating part of the second vertebra: the rest of the vertebrae, in the inferior articulating parts of their bodies, receive the superior articulating parts of the vertebra below, and have their articulating parts received by those above; so it is with the back and loins; *2*, the superior and posterior holes.

f, g, h, i, k, l, m, n, 3, 4, The epistrophæus, or second vertebra of the neck: *f*, the inferior part of the body, which receives and is sustained by the third vertebra of the neck; *g*, the superior part of its body, which is received by and sustains the atlas or first vertebra of the neck; *h*, the anterior protuberance of the body of this vertebra; *i*, the transverse process; *k*, the spinal process; *l*, the lower oblique process on the left side, which is covered with a smooth cartilage within the dotted lines; *m*, the lower oblique process on the right side: at *3* is a hole where the vertebral artery goes in, and comes out at *4*, called the transverse hole.

o, p, q, r, s, t, u, w, x, y, The third vertebra of the neck: *o*, the anterior protuberance of the body of this vertebra; *p* is the superior part of the body of this vertebra, which is received into the inferior part of the body of the second vertebra; and *q* is the inferior, which receives the superior part of the body of the fourth vertebra; *r*, the transverse process; *s*, the left upper oblique process; *t*, the left lower oblique process; *w*, the transverse holes through which the vertebral arteries and veins of the neck pass; *x*, the right upper oblique processes, seen through the large foramen or hole which contains the medulla spinalis, or spinal marrow.

N. B. This explanation may serve for the fourth, fifth, sixth, and seventh vertebrae of the neck.

A Continuation

A Continuation of the Bones of the Spine from the Neck.

6, *a, b, c, d, e, f*, The sixth vertebra of the back: *a*, the body; *b*, the transverse process; *c*, the upper oblique process; *d*, the lower oblique process; *e*, the spinal process; *f*, the ligament interposed betwixt the bodies of the fifth and sixth vertebræ of the back.

7, 8, 9, 10, 11, 12, 13, The vertebræ below the sixth, to the letters of which the explanation of the sixth will answer.

A, B, C, D, E, F, G, The seven vertebræ of the loins. The explanation of the sixth vertebra of the back will explain the vertebræ of the loins.

g, h, ii, k, ll, mm, The os sacrum, or great bone of the spine: *g*, the anterior part, or body of this bone, which in young animals is divided into as many bodies as there are spines in this bone, it being then like three vertebræ, whose transverse processes make the unequal rough part *h* of this bone; *ii*, the spines; *kk*, two inferior and anterior holes, which transmit the nerves on each side; *ll*, posterior foramina or holes. [These foramina, both anterior and posterior, answer to the foramina through which are seen, in this Table, the oblique processes of the left side of the vertebræ of the neck, back, and loins; the transverse processes of this bone being joined, make two holes, one anterior, and one posterior, of which there is but one in the neck, &c. the transverse processes not being joined.] *mm*, the part of this bone made by the union of those parts which were oblique processes, when it was divided into three vertebræ.

n, o, p, q, r, s, The first bone of the coccyx or tail: *n*, the body; *o*, the transverse process; *p*, the upper oblique process, which articulates with the os sacrum; *q*, the spine; *r*, the lower oblique process; *s*, the ligament interposed betwixt the bodies of the first and second bone of the tail, tying them together.

The same letters on the rest of the bones of the tail, will answer to the explanation of the first; only it is to be observed, that after the seventh, where the spinal channel terminates, the oblique processes form no articulations; the protuberating parts diminish gradually, acquiring an oblong form, thickest towards their extremities.

There are twenty-four bones in the tail.

The

The Bones in the Thorax and Shoulder-blades, viewed laterally.

a a, &c. *b b*, &c. the sternum, or breast bone, of which the parts *a a*, &c. are bony; those marked *b b*, &c. are cartilaginous or ligamentous, and by them the bony parts are connected together.

1, *c*, *d*, *e*, The seventh rib: *c*, the head, by which it is articulated with the transverse process of the seventh vertebra of the back; *d*, the anterior part of the said head, which is connected to the bodies of the sixth and seventh vertebræ of the back; *e*, the cartilaginous end, by which it is continued to the sternum.

This explanation will serve for the rest of the ribs; but it is to be observed, that the ten superior ribs only are connected to the sternum, and called true ribs; the others are called false ribs.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, Show the external side of the ribs on the left side, and internal on the right side.

ff, *gg*, The inside of the right scapula or shoulder-blade.

h, *i*, *k*, *ll*, *mm*, *nn*, *o*, *p*, The left scapula; *h*, its neck; *i*, its spine; *k*, the coracoid apophysis or epiphysis; *ll*, its inferior costa; *mm*, its superior costa; *nn*, its basis; *o*, fossa sub-spinalis; *p*, fossa supra-spinalis.

The Bones in the Left Upper Limb or Extremity, viewed laterally.

a, *b*, *d*, *f*, *h*, *i*, *k*, The humerus, or bone of the arm: *b*, denotes a protuberance, into which the teres minor is inserted; *d*, *f*, *h*, the upper head; *h*, the part of the head which is joined to the cavity of the scapula, covered with a smooth cartilaginous crust; *i*, the external condyle of the lower head; *k*, the head, covered with a smooth cartilage, with which the radius is articulated.

n, *p*, *q*, *r*, The radius: *n*, the upper head; *p*, *q*, *r*, the lower head of this bone; *p* denotes a sinus or groove through which goes the tendon of the extensor carpi radialis; *q*, a sinus, through which goes the tendon of the extensor digitorum communis; *r*, a sinus, through which goes the

the tendon which is analagous to the tendon of the extensor minimi digiti.

s, t t, u, The ulna: *s*, the olecranon, or elbow; *t t*, the part which articulates with the humerus; *u*, the lower head.

w, x, y, z, A, B, C, The bones of the carpus: *w*, os scaphoides or naviculare; *x*, os lunare; *y*, os cuneiforme; *z*, os pisiforme or orbiculare; *A*, os trapezoid, cubical, or least of the multangular bones of the wrist; *B*, os magnum, or the great round-headed bone of the wrist; *C*, the unciform or hook-like bone of the wrist.

1, 3, 4, 5, 6, 7, 8, The metacarpal bones: 1, the metacarpal bone, in the place of that which, in the Human Skeleton, belongs to the index or fore finger: 3, 4, the metacarpal bone, which belongs to the middle finger; 3, the upper head, by which it articulates with the carpus; 4, the lower head, incrustated with a smooth cartilage: 5, 6, the metacarpal bone belonging to the ring finger; 5, the head, by which it articulates with the carpus; 6, the lower head, incrustated with a smooth cartilage: 7, 8, the metacarpal bone belonging to the little finger; 7, the upper head, by which it articulates with the unciform bone of the carpus; 8, the lower head, incrustated in this place with a smooth cartilage.

10, 11, Two bones, which are always to be found in each of these joints of the metacarpus; these bones are called sesamoid bones in the Human Skeleton.

16, 17, A bone of the third phalanx of the thumb, in the Human Skeleton; 16, the superior part, which articulates with the second phalanx of the thumb; 17, the part which sustains the nail.

20, 21, A bone of the first phalanx of the fingers, in the Human Skeleton: 20, the upper heads, by which it is articulated with the metacarpal bone; 21, the lower heads.

22, 23, A bone of the second phalanx of the fingers, in the Human Skeleton: 22, the upper head, by which it is articulated with the bone of the first phalanx of the fingers; 23, the lower head.

24, 25, A bone of the third phalanx of the fingers: 24, the upper head, by which it articulates with the bone of the second phalanx of the fingers; 25, &c. the part which sustains the nail.

The

The Bones in the Right Upper Limb or Extremity, viewed laterally.

a, A, I, k, The os humeri: *A*, a large hole for the passage of nerves and blood-vessels; *I*, the internal condyle of the lower head, which at *k* is connected with a smooth cartilage, where it articulates with the radius.

n, o, p, P, The radius: *n, o*, the upper head; *p* denotes a sinus or groove in the lower head, in which the tendon of the extensor carpi radialis lies.

s, tt, u, The ulna: *s*, the olecranon or elbow; *tt*, the part which articulates with the elbow; *u*, the lower head.

w, x, z, A, B, C, The bones of the carpus: *w*, os sphenoides or naviculare; *x*, os lunare; *z*, os pisiforme or orbiculare; *A*, os trapezium, which articulates with the thumb; *B*, os magnum or the great round-headed bone of the wrist; *C*, the unciform or hook-like bone of the wrist.

1, 2, 4, 7, 8, The metacarpal bones: *1, 2*, the metacarpal bone, in the place of that which, in the Human Skeleton, belongs to the fore finger; *1*, the upper head, by which it articulates with the trapezoid bone of the carpus; *2*, the lower head, incrustated with a smooth cartilage; *4*, the lower head of the metacarpal bone, which belongs to the middle finger, incrustated with a smooth cartilage; *7, 8*, the metacarpal bone, belonging to the little finger in the Human Skeleton; *7*, the upper head, by which it articulates with the unciform bone of the carpus; *8*, the lower head, incrustated with a smooth cartilage.

10, 11, Two bones which are always to be found in this joint; such bones are called sesamoid bones in the Human Skeleton.

12, 13, A bone of the first phalanx of the thumb, in the Human Skeleton: *12*, the upper head, by which it articulates with the os trapezium of the carpus; *13*, the lower head, incrustated with a smooth cartilage.

14, 15, A bone of the second phalanx of the thumb, in the Human Skeleton: *14*, the upper head, which articulates with the first phalanx of the thumb; *15*, the lower head, incrustated with a smooth cartilage.

F

16, 17,

16, 17, A bone of the third phalanx of the thumb, in the Human Skeleton: 16, the upper head, which articulates with the second phalanx of the thumb; 17, the part which sustains the nail.

20, 21, 22, 23, 24, 25, The three bones or phalanxes of the fingers. The explanation is absolutely the same, and will answer to the explanation on the right upper limb.

The Bones in the Pelvis, viewed laterally.

a, b, c, d, e, f, g, h, ii, k, lll, The left os innominatum, or bason-bone, including three others: *a, b, c, d*, the os ilium, hip or flank bone; *b, c*, the spine; *b*, the anterior part of the spine; *c*, the posterior part; *d*, the protuberance, from which arises the rectus muscle of the leg; *e, f, g*, the os ischium or hitch-bone; *e*, the acute process; *f*, the tubercle of the ischium; *h, ii*, the os pubis; *ii*, the spine or ridge of the os pubis; *k*, the great foramen of the ischium and pubis; *lll*, the external margin of the acetabulum.

a, c, d, ii, The right os innominatum, which will answer to the explanation of the left os innominatum, with this difference only, that the left shows the external view, and this the internal view.

The Bones in the Lower Limb or Extremity, viewed laterally.

a, c, d, f, g, h, i, The left os femoris, or thigh bone: *a*, the body or middle of this bone; *c*, the head, incrustated with a smooth cartilage, where it is jointed into the acetabulum; *d*, the great trochanter, or spoke; *f*, a very prominent part of the linea aspera; *g*, a fossa or notch, out of and from the borders of which, the external head of the gemellus, and the plantaris muscles, arise; *h, i*, the lower extremity: *h*, the outer condyle of the lower head, which at *i* is covered with a smooth cartilaginous crust.

l, m, n, The right femur or thigh bone: *l*, the less trochanter; *m*, a roughness, from which arises the internal head of the gemellus; *n*, the inner condyle.

q q, r r, The patellæ or knee-pan bones: *r r*, the parts which are covered with smooth cartilaginous crusts, which form parts of the joints of the knees.

s, The inner semi-lunar cartilage, which is interposed in the joint of the knee.

t, The outer semi-lunar cartilage, in the joint of the knee.

u, v, w, x, y, u, w, x, y, The tibia, or greater bones of the leg: *u, v*, the upper heads; *v*, that part of the upper head which, belonging to the joint of the knee, is covered with a smooth cartilaginous crust; *w w*, protuberances in which terminate the anterior ligaments, which come from the patellæ and tie them to the tibia; *y*, the lower head of the left tibia; *z*, the lower head of the right tibia.

1, 2, 1, The fibulæ, or small bones of the legs: 1, 1, the uppermost head; 2, the lower head or extremity, which articulates with the tarsus.

4, 5, 5, 6, The astragali, or cockal bones: 4, 5, the part which forms the juncture with the bones of the leg, covered with a smooth cartilaginous crust.

7, 9, 7, 8, 9, The calcanei, or heel bones: 8, the projecting part that sustains the astragalus; 9, the tubercle into which is inserted the tendo achillis.

10, The cubical bone of the tarsus or ancle.

11, 11, The navicular bones of the tarsus.

12, 12, The middle cuneiform bones of the tarsus.

13, The less cuneiform bone of the tarsus.

14, 15, 16, 17, 18, 19, 16, 17, 18, 19, 20, 21, The bones of the metatarsus or instep: 14, 15, the metatarsal bone, in the place of that which, in the Human Skeleton, belongs to the first toe; 14, the upper head, by which it articulates with the tarsus; 15, the lower head, in this place covered with a smooth cartilaginous crust, where it articulates with the upper head of the bone of the first phalanx or order of small toes; 16, 17, the metatarsal bone, in the place of that which, in the Human Skeleton, belongs to the second toe; 16, the upper head, by which it articulates with the tarsus; 17, the lower head, incrustated with a smooth cartilage; 18, 19, the metatarsal bone, in the place of

that which, in the Human Skeleton, belongs to the third toe; 18, the upper head, by which it is articulated with the tarsus; 19, the lower head, incrustated with a smooth cartilage; 20, 21, the metatarsal bone, in the place of that which, in the Human Skeleton, belongs to the fourth or little toe; 20, the upper head, by which it is articulated with the tarsus; 21, the lower head, incrustated with a smooth cartilage.

22, 23, 22, 23, Bones which are always to be found in these joints, two in each; such are called sesamoid bones in the Human Skeleton; they serve, in these joints, to throw the bending tendons farther from the centre of motion, and form proper grooves to slide in.

24, 25, 26, 27, 28, 29, The bones which are in the three phalanxes or orders of bones of the small toes, in the Human Skeleton.

TABLE V.
OF THE
SKELETON OF THE BODY OF A FOWL,
VIEWED Laterally.

THE FIRST ANATOMICAL TABLE OF THE SKELETON OF THE BODY
OF A FOWL EXPLAINED.

The Bones of the Head, viewed laterally,

a a a, b, c, d, e, f, g, THE os frontis or forehead bone: *b*, a small hole, which transmits an artery and a nerve out of the orbit to the frontal muscle; *c*, that part of the frontal bone which forms part of the orbit: *d, e*, the coronal suture; *d*, a squamose suture; *e*, the part of it which makes a serrated or true suture, common to the frontal bone with the parietal bone; *f*, a suture common to the frontal and nasal bones.

h, ii, k k, The vertical or parietal bone: *ii*, a squamose suture common to the parietal with the temporal bone; *k k*, the lambdoid suture, common to the parietal bone with the occipital bone.

l, m, The occipital bone: *l*, the occipital protuberance.

r, s, t, u, w, x, Os temporis, or the temporal bone: *r*, the zygomatic or jugal process; *t*, the part which articulates with the lower jaw bone; *u*, the mammillary process; *w*, the bony meatus or entrance of the ear; *x x*, a suture common to the cheek bone with the temporal bone.

1, 2, 3, Os unguis: 1, a small protuberance from whence arises the orbicular muscle of the eye-lids; 2, a sinus or cavity belonging to the nasal canal.

7, *x*, Os jugale or cheek bone, by which, at 7, is formed a suture with the upper jaw bone, and at *x x*, another with the temporal bone.

11, 12, Os maxilla superior, or the upper jaw bone.

16, Os nasi.

17, 18, 19, 20, The lower mandible or lower jaw bone: at 17, are marked roughnesses, from which arise the tendinous parts of the masseter; 18, a hole, out of which passes a nerve of the fifth pair, and blood-vessels to the chin; 19, the coronal or acute process; 20, its condyle or head, that is articulated with the temporal bone.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, *The Vertebrae of the Neck, viewed laterally.*

b, c, The atlas or uppermost vertebra of the neck: *b*, the transverse process; *c*, the spinal apophysis.

N. B. This vertebra receives the articulating part of the occipital bone, as well as the articulating part of the second vertebra: the rest of the vertebrae, in the inferior articulating parts of their bodies, receive the superior articulating parts of the vertebrae below, and have their superior articulating parts received by those above; so it is with the back and loins.

f, g, h, i, k, l, The epistrophæus or second vertebra of the neck: *f*, the inferior part, which receives and is sustained by the third vertebra of the neck; *g*, the superior part of its body, which is received by and sustains the atlas or first vertebra of the neck; *h*, the anterior protuberance of the body of this vertebra; *i*, the transverse process; *k*, the spinal process; *l*, the lower oblique process.

o, p, q, r, s, t, u, w, The third vertebra of the neck: *o*, the anterior protuberance of the body of this vertebra; *p*, the superior part of this vertebra, which is received into the inferior part of the body of the second vertebra; *q*, the inferior part of the body which receives the superior part of the fourth vertebra; *r*, the transverse process; *s*, the right upper oblique process; *t*, the lower oblique process; *u*, the spinal process; *w*, the transverse hole through which the vertebral arteries and veins of the neck pass.

N. B. This explanation may serve for the eleven vertebrae below the third, except the sixth, seventh, eighth, ninth, and tenth, which have no anterior protuberance.

A Conti-

A Continuation of the Spine from the Neck, viewed laterally.

a, b, c, d, e, f, g, 1, The first or uppermost vertebra of the back: *a*, the body; *b*, the transverse process; *c*, the upper oblique process; *d*, the lower oblique process; *e*, the anterior protuberance; *1*, the spinal process.

2, 3, 4, 5, 6, 7, The spinal processes of the six lower vertebræ of the back, to the letters of which the explanation of the first will answer: the second, third, fourth, and fifth spinal processes, are united as one common bone; so are the oblique and transverse processes; the second, third and fourth, meet near the extremities of their anterior protuberances, and form two foramina or circular openings, *f, g*; the third and fourth, at their meeting, under the posterior foramen *g*, throw out two oblique spines, which form an arch, from the concave surface of which arises the longus colli.

h, The body of the first vertebra of the loins: the vertebræ of the loins are, in the chicken, seven distinct bones; but in the adult fowl they become one bone, together with the last vertebra of the back and the six vertebræ of the os sacrum.

i, The lower oblique process of the os sacrum or great bone of the spine: this bone, in the chicken, is divided into six distinct bones, but in the adult fowl becomes one bone with the last vertebra of the back and the seven vertebræ of the loins.

n, o, p, q, r, The sixth bone of the coccyx or tail: *n*, the body; *o*, the transverse process; *p*, the upper oblique process; *q*, the spine; *r*, the ligament interposed betwixt the bodies of the fifth and sixth bones of the tail, tying them together. The same letters on the rest of the bones of the tail, will answer to the explanation of the sixth.

The Bones in the Thorax and Shoulder, viewed laterally.

a a a, &c. *b b*, The sternum, or breast bone: *b b*, the upper part, which articulates with the clavicles, commonly called the merry-thought.

1, 2,

1, 2, 3, 4, 5, 6, 7, The external side of the ribs, which are seven in number; the upper two, 1, 2, short ones; the inferior five, 3, 4, 5, 6, 7, long true ribs.

c, d, e, The sixth rib: *c*, the head, by which it articulates with the transverse process of the sixth vertebra of the back; *d*, the anterior or foremost part of the said head, which is connected to the bodies of the fifth and sixth vertebræ of the back; *e*, the anterior and inferior end, where it is connected to the bone which is interposed between it and the sternum.

8, 9, 10, 11, Bony appendages to the second, third, fourth and fifth ribs, running from the inferior edge of one rib, obliquely backwards and downwards, towards and over the external side of the next rib below it.

12, 13, 14, 15, 16, *fff*, Bones articulated with the ribs and sternum, at *eee* and *fff*, instead of such cartilages as are in the human body.

k, ll, m, nn, The scapula or shoulder-blade: *k*, the neck; *ll*, the inferior costa; *m*, the spine; *nn*, its basis.

o, p, q, The clavicle or collar bone: *o, p*, its upper extremity; *p*, its articulation with the os humeri; near *q*, it is articulated with the sternum.

The Bones in the left Upper Limb or Extremity, viewed laterally.

a, b, c, h, i, k, The humerus or bone of the arm: *b*, the great tuberosity; *c*, the small tuberosity; *h*, that part of the upper head covered with a smooth cartilaginous crust for the articulation; *i*, the external condyle of the lower head; *k*, the part of the lower head covered with a smooth cartilage, with which the radius is articulated.

n, o, p, q, r, The radius: *o, p*, the upper head; *q, r*, the lower head, which articulates with the bones of the carpus.

s, tt, uu, The ulna: *s*, the olecranon; *tt*, the part which articulates with the humerus; *uu*, the lower head, which articulates with the bones of the carpus.

1, 2, 3, The bones of the carpus: 1, a sesamoid bone belonging to the elastic ligament of the wing; 2, os magnum or the great round-headed bone of the wrist; 3, the unciform or hook-like bone of the wrist.

wrist. There are no more bones of the carpus in this sort of fowl than two.

4, 5, 6, 7, 8, A bone which is analogous to the first phalanx of the thumb, and three of the metacarpal bones joined together; that is, that of the fore finger, that of the middle finger, and that of the ring finger: 4, the upper head, by which it articulates with the carpus; 5, the lower head, by which it articulates with the bone analogous to three bones of the first phalanx of the fingers: 6, 7, the metacarpal bone of the little finger; 6, the upper head, by which it articulates with the unciform bone of the carpus; 7, the lower head, by which it articulates with the bone of the first phalanx of the little finger; 8, the part belonging to the thumb.

12, 13, A bone which fills the place of, or is analogous to, three bones of the first phalanx of the fingers: 12, its upper head, by which it articulates with the metacarpal bone; 13, its lower head, by which it articulates with the bone which is analogous to three bones of the second phalanx of the fingers.

14, The bone of the first phalanx of the little finger. There are no more bones of this finger.

15, A bone which is analogous to three bones of the second phalanx of the fingers; 15, its upper head, by which it is articulated with the first phalanx of the fingers. There are no more than two phalanxes of bones of these three fingers.

16, 17, The bone of the second phalanx or order of the thumb: 16, its uppermost head, by which it is articulated, at 8, with what is analogous to the first phalanx of the thumb; 17, its lower head, by which it is articulated with the bone of the third phalanx of the thumb.

18, The bone of the third phalanx of the thumb.

The Bones in the Pelvis, viewed laterally.

a, b, c, d, e, f, g, h, i, i, k, ll, m, n, The os innominatum, or bason bone, including three bones: *a, b, c, d*, the os ilium, hip or flank bone; *b, c*, the spine; *b*, the anterior part of the spine; *c*, the posterior part; *d*, the protuberance, from which arises the rectus muscle of the

G

leg;

leg; *e, f, g, h*, the os ischium, or hitch bone; *e*, the acute process; *f*, the obtuse process or tubercle of the ischium; *g*, the great foramen of the ischium and ilium, through which the obturator internus passes; *hh, i*, the os pubis; *i*, the spine or ridge of the os pubis; *k*, the foramen of the ischium and pubis; *ll*, the external margin of the acetabulum, or cavity cotyloid; the letter *g*, lies on the internal side of the os ischium on the right side, and on the margin of the great foramen of that side.

The Bones in the Lower Limb or Extremity, viewed laterally.

a, b, c, d, e, f, g, h, i, The left femur, or thigh bone: *a*, the body or middle of this bone; *b, c, d, e*, the upper extremity, of which *b* is the neck; *c*, the head, incrusted with a smooth cartilage, where it is jointed into the acetabulum; *d*, the great trochanter; *e*, the little trochanter; *f*, a very prominent part of the linea aspera, into which the external glutæus is inserted along with the fascia lata; *g*, a large fossa, or notch, out of and from the borders of which the external head of the gemellus and the plantaris muscles arise; *h, i*, the lower extremity; *h*, the outer condyle of the lower head, which at *i* is covered with a smooth cartilaginous crust.

k, l, The right femur: *k*, the body or middle of this bone; *l*, the little trochanter.

q, The patella.

t, The outer semilunar cartilage which is interposed in the joint of the knee.

u, v, w, y, z, The tibia or greater bone of the leg: *u, v, w*, the upper head; *v*, that part of the upper head which, belonging to the joint of the knee, is covered with a smooth cartilaginous crust; *w*, a protuberance, in which terminates the anterior ligament which comes from the patella and ties it to the tibia; *y*, the lower head of the right tibia; *z*, the lower head of the left tibia. At *g*, a semilunar cartilage is interposed.

1, 2, The fibula or small bone of the leg: 1, the upper head; 2, the lower head or extremity, which ends here in a sharp point.

3, Astragalus: the only one of the tarsus that is separate from the metatarsus;

metatarsus; the rest, with the bones of the metatarsus, are all joined in one, together with the bony part of the spur.

4, 5, 6, 7, 8, 9, 10, 11, 12, A bone, which is analogous to all the bones of the tarsus and metatarsus, but one, which is the astragalus, marked 3: the part 4 does the office of the os calcis, and receives the insertion of the tendo achillis; at 5, there is some appearance of the cubical bone of the tarsus, and at 6, of the cuneiform bone; at 9, the lower head of the metatarsal bone of the little toe is distinct, and here covered with a smooth cartilaginous crust; at 10, the lower head of that metatarsal bone next to the little toe is distinct, and here covered with a smooth cartilaginous crust; at 11, the lower head of that metatarsal bone which is analogous to that of the third toe in the human body, is distinct, and here covered with a smooth cartilaginous crust (there is no appearance of the second metatarsal bone in this subject); 12, the bone of the spur.

13, 14, The first metatarsal bone, or that belonging to the great toe: 13, its upper head; 14, its lower head, here covered with a smooth cartilaginous crust, in this place, where it articulates with the first phalanx of the small toes.

15, 16, The bone of the first phalanx or order of bones of the great toe: 15, the upper head, which articulates with the bone of the metatarsus; 16, the lower head, incrustated with a smooth cartilage.

17, 18, The bone of the second phalanx or order of bones of the great toe: 17, its upper head, which articulates with the bone of the first phalanx; 18, the part which sustains the nail.

19, 20, The bone of the first phalanx or order of bones of the third small toe: 19, the upper head, which articulates with the bone of the metatarsus; 20, the lower head, incrustated with a smooth cartilage.

21, 22, The bone of the second phalanx or order of bones of the third small toe: 21, the upper head, which articulates with the bone of the first phalanx or order of bones of the third small toe; 22, the lower head, incrustated with a smooth cartilage.

23, 24, The bone of the third phalanx or order of bones of the third small toe: 23, the upper head, which articulates with the bone of the second phalanx or order of bones of the third small toe; 24, the lower head, incrustated with a smooth cartilage.

25, 26,

25, 26, The bone of the fourth phalanx or order of bones in the third small toe: 25, the upper head, which articulates with the bone of the third phalanx or order of bones of the third small toe; 26, the lower head, incrustated with a smooth cartilage.

27, 28, The bone of the fifth phalanx or order of bones in the third small toe: 27, the upper head, which articulates with the bone of the fourth phalanx or order of bones of the third small toe; 28, the part which sustains the nail.

29, 30, The bone of the first phalanx or order of bones in the second small toe: 29, the upper head, which articulates with the bone of the metatarsus; 30, the lower head, incrustated with a smooth cartilage.

31, 32, The bone of the second phalanx or order of bones in the second small toe: 31, the upper head, which articulates with the bone of the first phalanx or order of bones in the second small toe; 32, the lower head, incrustated with a smooth cartilage.

33, 34, The bone of the third phalanx or order of bones in the second small toe: 33, the upper head, which articulates with the bone of the second phalanx or order of bones in the second small toe; 34, the lower head, incrustated with a smooth cartilage.

35, 36, The bone of the fourth phalanx or order of bones in the second small toe: 35, the upper head, which articulates with the bone of the third phalanx or order of bones in the second small toe; 36, the part which sustains the nail.

37, 38, The bone of the first phalanx or order of bones in the first small toe: 37, the upper head, which articulates with the bone of the metatarsus; 38, the lower head, incrustated with a smooth cartilage.

39, 40, The bone of the second phalanx or order of bones in the first small toe: 39, the upper head, which articulates with the bone of the first phalanx or order of bones in the first small toe; 40, the lower head, incrustated with a smooth cartilage.

41, 42, The bone of the third phalanx or order of bones in the first small toe: 41, the upper head, which articulates with the bone of the second phalanx or order of bones in the first small toe; 42, the part which sustains the nail.

TABLE I.
OF THE
ANATOMY OF THE HUMAN BODY,
VIEWED ANTERIORLY.

THE FIRST ANATOMICAL TABLE OF THE MUSCLES, FASCIAS, LIGAMENTS,
NERVES, ARTERIES, VEINS, GLANDS, AND CARTILAGES
OF THE HUMAN BODY EXPLAINED.

THE Human Body is composed of firm and liquid parts, commonly called solids and fluids: of the solid parts, some are hard, others soft and flexible. The solid parts are the chief subjects of anatomy, properly so called. The history of the fluid parts comes into a system of anatomy only occasionally. Anatomists ordinarily reduce all the solid parts under certain general classes, expressed by the common names of bone, cartilage, ligament, fibre, membrane, vessel, artery, vein, nerve, muscle, gland, fat, viscus, organ, &c.

By bones, we mean the hardest, most solid, and most inflexible parts of the human body.

A cartilage is a whitish or pearl-coloured substance, softer than a bone, but harder than any other part, smooth, polished, pliable, and elastic.

A ligament is a white, fibrous, compact substance, more pliable than a cartilage, difficult to be broken or torn, and yielding but little when drawn out with force.

The name of fibre is given to small filaments which appear to be the most simple parts of the body, and which, by their different disposition and connexions, compose all the other parts. The fibres themselves differ in substance, being either membranous, fleshy, tendinous, or

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bony;

bony; in dissection, being either strait, oblique, longitudinal, transverse, circular, or spiral; and in size, being either large, small, long, or short.

By membrane, we understand a pliable texture of vessels disposed or interwoven together in the same plane: they differ in thickness according to the smallness of these vessels and number of their planes: these particular planes are termed *laminae*, and distinguished into external, internal, middle, &c. The difference of membranes in general depends on that of the vessels of which they are composed; small portions of membranes, especially when they are very thin, are called *pelliculae*; and some membranous *laminae* are united together by the intervention of a particular substance, composed of this sort of pellicles, and called the cellular or spongy substance.

Vessels are tubes, ducts, or canals, more or less flexible, composed of different membranes, the strata of which are generally termed *tunicæ* or coats: some of them are divided into branches; and these again into *rami* and ramifications, which gradually diminish, but still remain hollow. The general design of the vessels is to contain fluids; from the diversity of which, they are distinguished into blood-vessels, *vasa lactea*, *lymphatica*, &c. The last and smallest extremities of all sorts of vessels are generally termed capillaries.

The blood-vessels are of two kinds; one of which receives the blood from the heart, and distributes it to all the parts of the body, which are named arteries; the other brings the blood from all the parts back to the heart, which are called veins; and some of these have the names of sinuses.

The arteries are thicker than the veins, and may be distinguished by this mark in dead bodies; and, in living bodies, they may be known by a certain beating, called the pulse. The veins lie nearer the surface of the body than the arteries, and are furnished with valves, that is, with small membranous *sacculi*, fixed at different distances to the sides of their cavities: the openings of these valves are broad, and turned toward that side where the vein is largest: they prevent the return of the blood that has passed through them: in some places, these valves are single, in others double, triple, &c.

By nerves, Anatomists mean the white ropes which proceed from the *cerebrum*, *cerebellum*, and spinal marrow, and are spread over all the parts

parts of the body by filaments and ramifications. They are the organs of muscular motion and animal sensation; and they, as well as the mind, depend on the brain.

Muscles are bundles of fibres, of a reddish colour and of different lengths, thick, soft, and capable of contraction; the extremities are white, small, compact, and incapable of yielding.

The middle portion of such moving fibre is said to be fleshy: the extremities are called tendinous; and the substance formed by them, tendons.

Glands are clusters or *moleculæ*, distinguishable from all the other parts of the body, by their form, consistence, texture, and connexion: they are in general made up of arteries, veins, nerves, and other particular vessels, which are united together in their different folds, contortions, and intertextures, and invested by a membranous covering. The office of a gland is to separate from the mass of blood, by means of certain secretory vessels, fluids, which they discharge either immediately or by other vessels termed excretory; and these fluids are either accumulated in particular reservoirs, collected in the common cavities, or forced out of the body.

Fat and marrow are equivocal terms: by the first, we generally understand an oily, soft, white, or yellowish substance, of different consistences, collected between the skin and the muscles, in the interstices of the muscles, about the viscera, &c. and composed partly of the cellulous or spongy substance, and partly of an oily matter, of different thicknesses: this oily matter is called fat, and likewise *corpus adiposum*, by anatomists: marrow is one kind of fat, and differs from it only in the fineness of the membranous texture, in the subtilty of the oily matter, and its situation within the bones.

By *visceræ*, we commonly understand parts contained in a great cavity, without being connected to it through the whole extent or circumference: such are the stomach, intestines, &c. in the abdomen, and the lungs in the thorax.

Organ or instrument is a term given to every part capable of any function, whether it be simple or complex; and in this sense we talk of the organ of sight, of respiration, &c.

GENERAL DIVISION OF THE HUMAN BODY.

THE Human Body is divided into the Head, Neck, Thorax, Abdomen, Upper Extremities and Lower Extremities. Each portion is to be examined not only with regard to its external conformation, but also with regard to its internal structure or composition, and to the viscera or organs which it contains or supports.

The External Parts of the Head, viewed anteriorly.

The head, viewed on the outside, is divided into the hairy scalp and face.

a, b, c, d, The hairy scalp: it covers the upper part of the os frontis at *a*; the os parietalis, at *b*; the os temporum, at *c*; and the vertex, at *d*: it likewise covers the os occipitis: the uppermost part of the hairy scalp is termed the vertex; the back part, occiput; the lateral parts, the temples.

The Arteries on each side of the Hairy Scalp are these:

Arteria corotis externa, in general.

Arteria temporalis.

Arteria occipitalis.

Arteria angularis, by communication.

Arteria cervicalis posterior, by communication.

Arteria vertebralis, by communication.

Arteria carotis interna, by communication.

The Veins on each side of the Hairy Scalp are these;

Vena jugularis externa, in general.

Vena jugularis externa, posterior.

Vena temporalis.

Vena occipitalis.

Vena vertebralis.

Vena jugularis externa anterior, by communication.

Vena jugularis interna, by communication.

Sinus

Sinus lateralis duræ matris, by communication.

Vena axillaris, by communication.

Vena cephalica, by communication.

The Nerves on each side of the Hairy Scalp are these:

Nervi sub-occipitalis, commonly called the tenth pair from the medulla oblongata.

Par nonum, from the medulla oblongata.

Par primum cervicale.

Par secundum cervicale, by communication.

Nervi diaphragmatici, by communication.

Ramus frontalis of the orbitary or ophthalmic nerve.

Nervus sympatheticus minor, called the portio dura of the auditory nerve.

Nervus sympatheticus medius, or nerves of the eighth pair from the medulla oblongata, by communication.

Nervus sympatheticus maximus, commonly termed intercostalis, by communication.

The face comprehends all that portion of the surface of the head which lies between the hairy scalp and the neck; that is, the forehead, *e*; eye-brows, *f*; palpebræ, *g g*; eye, *h*; nose, *i*; mouth, *k*; chin, *l*; cheek, *m*; ear, *n*.

The external parts of the eye are these: the anterior portion of the globe of the eye, the membrana conjunctiva, the cornea lucida, iris, pupilla, caruncula lacrymalis, angles of the palpebræ, and the cilia or hairs of each palpebra. The internal parts are: the globe of the eye, the tunica sclerotica or cornea opaca, the coroides, arachnoides, chrystalline, vitreous humour, aqueous humour, the anterior and posterior chambers, the muscles, and the optic nerve.

The external parts of the ear are these: the great concha, the convex side of this concha, or hinder part of the ear, the great border, the fold or helix, the concavity, the broad eminence or anthelix, the small anterior eminence or tragus, the small posterior eminence or anti-tragus, the lobe or lower extremity of the ear, and the meatus.

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The external parts of the nose are these: the upper extremity or root of the nose; the arch or back, the sides of that arch; the tip of the nose, the alæ, the nares, and the septum narium. The internal parts are, the cavity and bottom of the nares, the convolutions, the maxillary, sphenoidal, and frontal sinuses.

The external parts of the mouth are these: the lips (one upper, the other lower), the angles or commissures of the lips, the border or edge of each lip, the fossula, which runs from the septum narium to the edge of the upper lip, and the transverse fold which separates the under lip from the chin.

The internal parts of the mouth are these: the palate, the septum palati, the uvula, the amygdalæ, gums, fræna of the lips, the tongue, its apex, roots, sides, and frænum.

The cheeks are the lateral parts of the face, reaching downward from the eyes and temples, between the nose and ears: the upper prominent part of the cheek is commonly termed mala.

The chin is the anterior protuberance by which the lower part of the face is terminated, from whence it runs all the way to the neck; this under part of the chin is termed the basis; and it is distinguished from the throat by a transverse fold, which reaches from ear to ear.

The Exterior Arteries which belong to each Side of the Face are these:

Arteria carotis externa.

Arteria carotis interna, by communication.

Arteria vertebralis, by communication.

Arteria cervicalis, by communication.

The Exterior Veins distributed to each Side of the Face are these:

Vena jugularis externa.

Vena jugularis interna, by communication.

Vena vertebralis, by communication.

The Exterior Nerves spread on each Side of the Face are these:

Nervus olfactorius.

Nervus opticus.

Nervus

Nervus orbitarius sive ophthalmicus. which is the first branch of the fifth pair from the medulla oblongata.

Nervus maxillaris superior.

Nervus maxillaris inferior.

Nervus trochlearis sive patheticus, which is the fourth pair.

Nervus motor oculi externus, sive muscularis externus, which is the sixth pair.

Nervus sympatheticus minimus, or the portio dura of the auditory nerve.

Nervus sympatheticus medius, which is the eighth pair.

Nervus sympatheticus maximus, sive universalis, commonly called intercostalis.

Nervus hypoglossus major, which is the ninth pair.

The second pair of the nervi cervicalis.

The Arteries of the Forehead are these :

Arteria temporalis, which is a branch of the external carotid.

Arteria angularis, which is a branch of the internal carotid.

Arteria carotis interna, by communication.

The Veins of the Forehead are these :

Vena frontalis.

Vena temporalis.

Vena angularis.

Sinus orbitarius.

Sinus longitudinalis superior, by communication.

Sinus longitudinalis inferior, by communication.

Vena jugularis interna, by communication.

The Nerves of the Forehead are these :

Nervus orbitarius sive ophthalmicus, which is the first branch of the fifth pair from the medulla oblongata.

Nervus maxillaris superior.

Nervus maxillaris inferior.

Nervus sympatheticus minor, which is the portio dura of the nervus auditorius.

The

The Arteries which go to the Eye are these:

Arteria temporalis, which is a branch of the external carotid.
 Arteria maxillaris externa sive angularis, which is a branch of the external carotid.
 Arteria maxillaris interna, which is a branch of the external carotid.
 Arteria carotis interna.

The Veins which belong to the Eye are these:

Vena temporalis, which is a branch of the posterior external jugular.
 Vena angularis, which is a branch of the anterior external jugular.
 Vena frontalis, which is a branch of the anterior external jugular.
 Sinus orbitarius.
 Sinus longitudinalis, by communication.
 Vena jugularis interna, by communication.

The Nerves belonging to the Eye are these:

Nervus olfactorius, by communication.
 Nervus opticus.
 Nervus motor communis, or the third pair.
 Nervus trochlearis, or the fourth pair.
 Nervus orbitarius sive ophthalmicus, a branch of the fifth pair.
 Nervus maxillaris superior, a branch of the fifth pair.
 Nervus motor externus.
 Nervus sympatheticus minor, or the portio dura of the auditory nerve.
 Nervus sympatheticus maximus sive universalis, commonly called intercostalis.

The Arteries distributed to the Nose are these:

The same arteries with those which go to the eye, amongst which the internal carotid supplies the nose by communication.
 Arteria labiarum orbicularis, by communication.

The Veins belonging to the Nose are these:

All the veins already mentioned as belonging to the eye.

The

The Nerves which go to the Nose are these :

- Nervi olfactorii.
- Nervus orbitarius sive ophthalmicus, a branch of the fifth pair, both immediately and by communication.
- Nervi motores communes, or the third pair, by communication.
- Nervi maxillares superiores, branches of the sixth pair.
- Nervus sympatheticus minimus.
- Nervus sympatheticus medius, by communication.

The Arteries which go to the Ear are these :

- Arteria temporalis, a branch of the external carotid.
- Arteria auricularis, a branch of the temporalis.
- Arteria occipitalis, by communication.
- Arteria vertebralis, by means of the arteria basilaris, which is a continuation of it.
- Arteria carotis interna, by communication with the arteria basilaris.

The Veins belonging to the Ear are these :

- Vena temporalis.
- Vena occipitalis.
- Vena cervicalis.
- Vena maxillaris: these three being the branches of the jugularis externa.
- Vena jugularis interna, by several communications.
- Sinus petrosus duræ matris.

The Nerves distributed to the Ear are these :

- Nervus maxillaris inferior, the third branch of the fifth pair.
- Nervus auditorius, the seventh pair.
- Nervus sympatheticus minimus, the portio dura of the auditory nerve.
- Nervus hypoglossus externus, the ninth pair, by communication.
- Nervus sub-occipitalis, the tenth pair, by communication.
- The second cervical pair.
- Nervus sympatheticus medius, the eighth pair.
- Nervus sympatheticus universalis, commonly called intercostalis.

The Arteries which go to the Mouth, Tongue, &c. are these :

The artery of the chin.

Arteria coronaria sive orbicularis labiorum, both being branches of the external carotid.

Arteria maxillaris interna.

Arteria sublingualis.

The Veins belonging to the Mouth, Tongue, &c. are these :

Vena maxillaris externa.

Vena maxillaris interna.

Venæ raninæ ; all these are branches of the external jugular.

Vena jugularis interna, by several communications.

Vena gutturalis superior, a branch of the internal jugular.

Vena axillaris, when it sends off the guttural vein.

The Nerves distributed to the Mouth, Tongue, and Salivary Glands, &c. are these :

Nervus maxillaris superior.

Nervus maxillaris inferior, both branches of the fifth pair.

Nervus sympatheticus minimus, or portio dura of the auditory nerve.

Nervus sympatheticus medius, the eighth pair.

The ninth pair from the medulla oblongata.

The second pair of cervical nerves.

Nervus sympatheticus maximus, by communication.

The cheeks on each side are furnished with arteries and veins from the nearest ramifications of the temporal and maxillary arteries and veins; and with nerves from the portio dura of the auditory nerve, and from the superior and inferior maxillary nerves.

THE EXTERNAL PARTS OF THE NECK, VIEWED ANTERIORLY.

THE neck in general is divided into the anterior part or throat, and posterior part or nape. The throat begins by an eminence at *a*, and terminates by a fossula at *b*; the nape begins by a fossula, and terminates by an eminence. The neck contains the larynx at *a*; a part of
of

of the trachea arteria at *b*; the pharinx, a part of the œsophagus, the musculi cutanei, sterno-matoidæi, sterno-hyoidæi, thyro-hyoidæi, omo-hyoidæi, splenius complexus, the musculi vertebrales, which lie upon the first seven vertebræ, and a portion of the medulla spinalis.

The Arteries which go to the Neck are these :

Arteriæ carotides, in general.
Arteriæ carotides externæ and internæ.
Arteriæ vertebrales.
Arteriæ cervicales.

The Veins belonging to the Neck are these :

Venæ jugulares, in general.
Venæ jugulares externæ.
Venæ jugulares internæ.
Venæ cervicales.
Venæ vertebrales.

The Nerves distributed to the Neck are these :

Nervi sympathetici minimi, or the portio dura of the auditory nerve.
Nervi sympathetici medii, the eighth pair.
Nervi accessorii octavii paris.
The ninth pair.
Nervi sub-occipitales, or the tenth pair.
The seventh cervical pair.
Nervi sympathetici maximi.

THE EXTERNAL PARTS OF THE THORAX, VIEWED ANTERIORLY.

By the thorax, we commonly understand all that part of the body which answers to the extent of the sternum, ribs, and vertebræ of the back, both outwardly and inwardly: the thorax is divided into the anterior part, called commonly the breast; the posterior part, called the back; and the lateral parts, called the right and left sides. The

external parts of the thorax, besides the skin, are principally the mammæ, and the muscles which cover the ribs and fill the spaces between them: in the mammæ, *a*, we see the papillæ or nipples, and a small coloured circle, which surrounds them: the muscles are the pectorales majores and minores, subclavii, serrati majores, serrati superiores postici, latissimi dorsi, and vertebrales; and to these we may add the muscles which cover the scapula. The internal parts of the thorax are contained in the large cavity of that portion of the trunk which is named the cavity of the breast: this cavity is lined by a membrane named plura, and divided into two lateral cavities, by a membranous septum named mediastinum, which is a production or duplicature of the plura. These parts are the heart, pericardium, trunk of the aorta, great arch of the aorta, trunks of the carotid arteries, subclavian arteries, trunks of the vertebral and axillary arteries, the superior portion of the descending aorta, the intercostal arteries, the vena cava superior, vena azygos, subclavian veins, trunks of the jugular, vertebral, and axillary veins, a portion of the aspera arteria, and of the œsophagus; the ductus lacteus or thoracicus, the lungs, pulmonary artery, pulmonary veins, &c.

The Arteries and Veins, which particularly belong to the Thorax, are these:

Arteriæ and venæ thoracicæ, superiores and inferiores.

Arteriæ and venæ mammariæ, internæ and externæ.

Arteriæ and venæ intercostales, superiores and inferiores.

Arteriæ and venæ spinales, with the venal sinuses of the canal of the spine.

The Nerves distributed to the Thorax are these:

Nervi sympathetici medii, or eighth pair.

Nervi sympathetici universales, commonly called intercostales.

The last cervical pair.

The twelve dorsal pairs.

Nervi diaphragmatici.

The cavity of the thorax is terminated downward by the diaphragm, which parts it from the abdomen.

THE EXTERNAL PARTS OF THE ABDOMEN, VIEWED ANTERIORLY.

THE abdomen begins immediately under the thorax, and terminates at the bottom of the pelvis of the ossa innominata: its circumference or outer surface is divided into regions, of which there are three anterior, that is, the epigastric or superior region, the umbilical or middle region, and the hypogastric or lower region; there is but one posterior region, named regio lumbaris.

The epigastric region begins immediately under the appendix ensiformis, at a small superficial depression, called the pit of the stomach, at *a*; and, in adult subjects, ends above the navel, at a transverse line, supposed to be drawn between the last false ribs on each side at *bb*. This region is subdivided into three parts, one middle, named epigastrium; and two lateral, termed hypochondria: the epigastrium takes in all that space which lies between the false ribs of both sides, and the hypochondria are the places covered by the false ribs.

The umbilical region begins, in adults, about the navel, at the transverse line already mentioned, and ends below the navel at another transverse line, supposed to be drawn parallel to the former, between the two cristæ of the os ilium, *ae*, *ce*: this region is likewise divided into three parts; one middle, which is properly the regio umbilicalis; and two lateral, called ilia, or the flanks; and they comprehend the space between the false ribs and the upper part of the os ilium on each side.

The hypogastric region is extended downward from the inferior limit of the umbilical region, and is divided into three parts; one middle, called pubis, *d*; and two lateral, *e*, called inguina or groins.

The lumbar region is the posterior part of the abdomen, and comprehends all that space which reaches from the lowest rib on each side, and the last vertebra of the back, to the os sacrum and neighbouring parts of the os ilium.

Lastly, the bottom of the abdomen, which answers to the pelvis of the skeleton, is terminated anteriorly by the pudenda or parts of generation, and posteriorly by the clunes or buttocks, and anus: the buttocks are separated by a fossa, which leads to the anus, and each
buttock

buttock is terminated downward by a large fold which distinguishes it from the rest of the thigh: this lumbar region takes in likewise the musculus quadratus lumborum on each side, the lower portions of the sacro-lumbares of the longissimi and latissimi dorsi, the musculus sacer, &c.

The space between the anus and the parts of generation, is called perinæum, and is divided into two equal parts by a very distinct line, which is longer in males than in females.

The cavity of the abdomen, formed by the parts already mentioned, all which are covered by the skin or membrana adiposa, is lined on the inside by a particular membrane, called peritonæum: it is separated from the cavity of the thorax by the diaphragm, and terminated below by the muscoli levatores ani.

This cavity contains the stomach and the intestines, which are commonly divided into three small portions, named duodenum, jejunum, and ilium; and three large, called cæcum, colon, and rectum: it contains likewise the mesentery, mesocolon, omentum, liver, gall bladder, spleen, pancreas, glands of the mesentery, vasa lactea, receptaculum chyli, kidneys, renal glands, ureters, bladder, and the internal parts of generation in both sexes.

The principal Arteries of the Abdomen are these:

Arteria epigastrica superior, which is the lowest portion of the mammaria interna.

Aorta inferior.

Arteria cæliaca.

Arteria mesenterica superior.

Arteriæ renales, called formerly emulgentes.

Arteriæ spermaticæ.

Arteria mesenterica inferior.

Arteriæ lumbares.

Arteriæ iliacæ.

Arteriæ hypogastricæ.

Arteriæ hæmorrhoidales.

Arteriæ pudicæ.

The

The principal Veins of the Abdomen are these :

The inferior portions of the venæ mammariæ internæ.

Venæ renales.

Venæ lumbares.

Venæ spermaticæ.

Venæ iliacæ.

Venæ hypogastricæ.

Vena portæ ventralis.

Vena portæ hepaticæ.

Vena mesarica major.

Vena splenica.

Vena mesarica minor sive hæmorrhoidalis interna.

The principal Nerves of the Abdomen are these :

Nervi stomachici, formed by the extremity of the sympathetici medii, or eighth pair.

Nervi sympathetici maximi, the inferior portion.

The two semilunar or plexiform ganglions.

Plexus stomachicus.

Plexus hepaticus.

Plexus splenicus.

Plexus renales.

Plexus mesentericus superior.

Plexus mesentericus inferior.

Nervi lumbares.

Nervi sacri.

Nervi crurales, their origin.

Nervi sciatici, their origin.

THE EXTERNAL PARTS OF THE UPPER EXTREMITIES, VIEWED ANTERIORLY.

THE whole arm is divided, as in the skeleton, into the shoulder, *a*; the arm, properly so called, *b*; the fore-arm, *c*; and the hand, *d*: but to these we must here add the axilla or arm-pit, *e*; the elbow, the fold

fold of the arm, *f*; and the hollow of the hand. What is called the axilla, is formed by the corresponding edges of the pectoralis major, and latissimus dorsi: the elbow answers to the olecranon; the fold of the arm is on the fore side of the articulation of the os humeri, with the bones of the fore-arm, and the hollow of the hand is in the middle of the palm: the arm, properly so called, is principally covered, from the shoulder downward, by the biceps brachialis, and the three anconæi: the fore-arm is furnished with those muscles which move the radius on the ulna, and the carpus on the fore-arm: the hand has few very considerable fleshy parts, except the thenar and hypothenar, between which the hollow of the hand is formed.

The Arteries of the whole Upper Extremity are these:

Arteria axillaris.
 Arteria humeralis.
 Arteria scapularis.
 Arteria articularis.
 Arteria brachialis.
 Arteriæ collaterales.
 Arteria cubitalis.
 Arteria radialis.
 Arteria interossea anterior.
 Arteriæ interosseæ posteriores.
 The arterial arches in the palm of the hand.

The Veins of the whole Upper Extremity are these:

Vena cephalica minor.
 Vena jugularis externa, by communication with the small cephalica.
 Vena axillaris.
 Venæ musculares.
 Venæ scapulares.
 Vena brachii cephalica.
 Vena brachii basilica.
 Venæ satellites arteriæ brachialis.
 Vena profunda superior.

Vena

Vena mediana, that is, mediana cubitalis, mediana basilica, mediana radialis sive cephalica, and mediana media or major.

Vena profunda cubiti.

Vena basilica cubiti sive cubitalis.

Vena cephalica cubiti sive radialis.

Venæ cubiti satellites.

Vena cephalica pollicis.

Vena salvatella sive auricularis.

Areolæ venosæ dorsi manus.

The Nerves of the whole Upper Extremity are these :

Nervi brachiales in general, formed by the last four or five cervical and first dorsal pairs.

Nervus musculo-cutaneus.

Nervus medianus.

Nervus cubitalis.

Nervus cutaneus internus.

Nervus radialis.

Nervus axillaris sive articularis.

THE EXTERNAL PARTS OF THE LOWER EXTREMITIES, VIEWED ANTERIORLY.

THE lower extremities of the whole body are divided, as those of the skeleton, into the thigh, 1; leg, 2; and foot, 3. The thigh begins anteriorly on one side of the fold of the groin at *a*; and posteriorly, a little above the lower half of the buttock: it terminates anteriorly at the patella, *b*; on the knee, and posteriorly at the poples or ham. It is formed chiefly by the muscles which surround the os femoris, and are invested by the fascia lata, that is, the glutæus maximus, two vasti, crureus, biceps, triceps, semi-membranosus, semi-tendinosus, grácilis internus, graciñs anterior, or rectus and sartorius.

The leg has but very few muscles on the fore part, but a great many large ones behind where the gastrocnemii and soleus form a kind of

K

belly,

belly, called the calf of the leg. The leg begins anteriorly at the knee below the patella, at *c*, and posteriorly at the poples; and it terminates below at the ankles, at *d*.

Besides the parts of the foot mentioned in the description of the skeleton, that convex part near its articulation with the leg at *e*, is termed the neck of the foot or instep; the fleshy parts are not more considerable than on the hand: the under part is termed the sole of the foot.

The Arteries of the whole Lower Extremity are these :

Arteria obturatrix, a branch of the hypogastrica.
 Arteria glutæa, by a branch of the hypogastrica.
 Arteria sciatica, by communication.
 Arteria pudica, by communication.
 Arteria cruralis.
 Arteria poplitea.
 Arteria tibialis anterior.
 Arteria tibialis posterior.
 Arteria peronæa.
 Arteria plantaris.

The Veins of the whole Lower Extremity are these :

Vena obturatrix.
 Vena glutæa.
 Vena cruralis.
 Vena magna saphena.
 Vena sciatica.
 Vena parva saphena, sive saphena externa.
 Vena poplitea.
 Vena tibialis.
 Vena peronæa.
 Vena plantaris.

The

The Nerves of the whole Lower Extremity are these :

Nervus cruralis, formed by a complication of the five lumbares, especially of the first four.

Nervus sciaticus, formed by the union of the last two lumbares, and first three sacri.

Nervus sympatheticus maximus, by communication with the nervi lumbares and sacri.

Nervus popliteus.

Nervus sciaticus internus sive popliteus internus.

Nervus sciaticus externus sive popliteus externus.

Nervus plantaris externus.

Nervus plantaris internus.

A DESCRIPTION OF THE COMMON INTEGUMENTS OF THE BODY.

ALL the parts of the human body are invested by a common and universal covering, to which anatomists give the name of integuments; that is, the cutis or skin, the caticula or scarf-skin, the nails and hairs; with the membrana adiposa.

The Cutis or Skin.

The skin is a substance of very large extent, made up of several kinds of tendinous, membranous, vascular, and nervous fibres; it is not easily torn, may be elongated in all directions, and afterwards recovers itself, as we see in fat persons, in women with child, and in swellings; and it is thicker and more compact in some places than in others. The outer surface of this substance is furnished with small eminences, which anatomists call papillæ, in which the capillary filaments of the cutaneous nerves terminate by small radiated pencils: these papillæ differ very much in figure and disposition, in the different parts of the body, and they may be distinguished into several kinds: the greatest part of them is flat, of different breadths, and separated by sulci, which form a kind of irregular lozenges. The papillæ of the

palm of the hand, of the sole of the foot, and of the fingers and toes, are higher than on the other parts of the body; but they are smaller, closely united together, and placed in particular rows, which represent on the skin all kinds of lines, strait, crooked, waving, spiral, &c. These several lines are often distinctly visible in those parts of the palm of the hand which are next the phalanges of the fingers. The red parts of the lips are made up of papillæ, representing very fine hairs or villi closely united together. There is another particular kind under the nails; the papillæ being there more pointed, or in a manner conical, and turned obliquely toward the ends of the fingers. Those which are found in the hairy scalp, scrotum, &c. are still of other kinds. The papillæ of the first and second kinds appear to be surrounded at their bases by a soft mucilaginous and pretty viscid substance, which fills the instertices between them, and represents a kind of net-work or sieve, the meshes or holes of which surround each papilla. This substance is commonly called corpus reticulare or mucosum. The origin of this reticular or mucous body has not hitherto been sufficiently explained; and it has been determined, whether it forms an universal integument, or whether it belongs more properly to the skin, than to the papillæ or epidermis. It is more probable, that this vascular texture is only a continuation or production of the very small capillaries of the arteries and veins, which transmit only the serous parts of the blood, while the red part continues its course through wider ramifications, which more properly retain the name of blood-vessels. This vascular texture is of various forms and figures in the different parts of the body; it is not the same in the face, with what it is elsewhere, neither is it alike on all the parts of the face, as may be discovered by the most ordinary microscopes.

It is most probable that this vascular texture, these papillæ or villi, are the external absorbents or mouths of the lymphatic vessels, and excretory ducts of the perspirable vessels.

The inner surface of the skin is covered by very small tubercles, called commonly cutaneous glands: these tubercles are partly fixed in small fossulæ in the substance of the skin, which answer to the same number of small cavities in the corpus adiposum: their excretory ducts open on the outer surface of the skin, sometimes in the papillæ, and

and sometimes on one side of them, as may be seen on the ends of the fingers, even without a microscope. The greatest part of them furnishes sweat, and others a fatty, oily matter of different thicknesses, as in the hairy scalp, in the back, behind the ears, and at the lower part of the nose, where this matter may be squeezed out, in form of small worms. On the head, this is called the dandrif, and filth or nastiness on the other parts of the body. By macerating the skin in water, or in any other proper liquor, these corpuscles become more visible, especially in the skin of the lower part of the nose and of the axilla. The late M. Duverney demonstrated in the Royal Academy, that the structure of some of these cutaneous glands resemble the circumvolutions of small intestines plentifully stored with capillary vessels. The illustrious M. Morgagni, Professor at Padua, has given the name of *glandulæ sebaceæ* to those which furnish the unctuous matter above-mentioned. Besides these corpuscles, there are other small solid bodies, almost of an oval figure, contained in the substance of the skin; these are the roots or bulbs from whence the hairs arise, and some of them are situated within the inner surface of the skin.

The Cuticula Epidermis, or Scarf-Skin.

The outside of the skin is covered by a thin transparent web, closely joined to it, which is called epidermis, cuticula, or the scarf-skin: the substance of the cuticula appears to be very uniform on the side next the skin, and to be composed on the other side of a great number of very fine squammous laminae, without any appearance of a fibrous or vascular texture, except some small filaments by which it is connected to the papillæ, and which perhaps are detached from thence: this substance is very solid and compact, but yet capable of being extended and thickened, as we see by steeping it in water, and by the blisters raised on the skin by vesicatories or any other means; and from thence it would seem that it is of a spongy texture. It yields very much in swellings, but not so much as the skin, without breaking or cracking. The origin of the epidermis is as obscure, as its regeneration is evident, sudden, and surprising; for let it be destroyed ever so often, it still grows again: hard and reiterated frictions loosen it, and presently afterward a new stratum arises, which thrusts the
first

first outward, and may itself be loosened and thrust outward by a third stratum, and so on.

The epidermis adheres very closely to the cutaneous papillæ, from which it may be separated by boiling; or, which is a much better way, by steeping for a long time in cold water: it adheres still closer to the corpus reticulare, which is easily raised along with it: and they seem to be true portions or continuations of each other. The epidermis covers the skin through its whole extent, except at the places where the nails lie; it is marked with the same furrows and lozenges as the skin, and has the same openings and pores; and though it may be said to pass the bounds of the skin, where it is continued inward through the great openings, yet at those places it only loses the name of epidermis. When we examine narrowly the pores, holes, or spincters, through which sweat passes, the epidermis seems to enter these, in order to complete the excretory tubes. The fossulæ of the hairs have likewise the same productions of the epidermis, and it seems to give a coat or bark to the hairs themselves: lastly, the almost imperceptible ducts of the cutaneous pores are lined by it. Having macerated the skin for a long while in water, the epidermis, with all its elongations, may be separated from it, with even the hairs and the bulbs.

The Membrana Adiposa, and Fat.

This is not merely a single membrane, but a congeries of a great number of membranous laminæ, joined irregularly to each other at different distances, so as to form different capacities, which communicate with each other: these interstices have been named cellulæ, and the substance made up of them, the cellous substance. The thickness of the membrana adiposa is not the same all over the body, and depends on the number of laminæ of which it is made up: it adheres very closely to the skin, runs in between the muscles in general, and between their several fibres in particular; and communicates with the membranes which line the inside of the thorax and abdomen. These cellular interstices are so many little sinuses, filled with an unctuous or oily juice, more or less liquid, which is called fat. It is secreted by the glandular membrane that surrounds it, deposited by its excretory ducts, and occasionally taken up by its
absorbents,

absorbents, in a similar manner to that of the membranes in general ; giving out, and taking up the lubricating fluids that lie betwixt them. Fat is more fluid in living than in dead bodies ; it melts with the heat of the fingers in handling it : this substance increases in quantity in the body, by rest and good living ; and, on the contrary, diminishes by hard labour and a spare diet.

The Nails.

The nails are looked upon by some as productions of the cutaneous papillæ, and by others, as a continuation of the epidermis : this last opinion agrees with experiments made by maceration, by means of which the epidermis may be separated entire from the hands and feet, like a glove or sock. In this experiment we see the nails part from the papillæ, and go along with the epidermis, to which they remain united ; and yet their substance and structure appear to be very different from that of the epidermis. Their substance is like that of horn, and they are composed of several planes of longitudinal fibres soldered together. These strata end at the extremities of each finger, and are all nearly of an equal thickness, but of different lengths ; the external plane or stratum is the longest, and the rest decrease gradually, the innermost being the shortest ; so that the nail increases in thickness from its union with the epidermis where it is thinnest, to the end of the finger where it is thickest. The graduated extremities or roots of all the fibres of which this plane consist, are hollowed for the same number of very small papillæ, which are continuations of the true skin, which having reached to the root of the nail, forms a semilunar fold in which that root is lodged ; after this semilunar fold, the skin is contained on the whole inner surface of the nail, the papillæ insinuating themselves in the manner already said : the fold of the skin is accompanied by the epidermis, to the root of the nail exteriorly, to which it adheres very closely. These parts are generally distinguished in the nail, the root, body and extremity : the root is white, and in form of a crescent ; and the greatest part of it is hid under the semilunar fold already mentioned. The crescent and the fold lie in contrary directions to each other : the body of the nail is arched, transparent, and appears of the colour of the cutaneous papillæ which

which lie under it; the extremity of the nail does not adhere to any thing, and still continues to grow as often as it is cut.

The Hairs.

The hairs belong as much to the integuments as the nails: their roots of bulbs lie toward that side of the skin which is next the membrana adiposa: the trunk or beginning of the stem perforates the skin, and the rest of the stem advances beyond the outer surface of the skin, to a certain distance, which is very various in the different parts of the body. When the different hairs are examined by a microscope, we find the roots very much oval, the largest extremity being either turned toward, or fixed in the corpus adiposum: the smallest extremity is turned toward the skin, and in some places fixed in the skin. This oval root is covered by a whitish strong membrane, in some measure elastic; and it is connected either with the skin, with the corpus adiposum, or with both, by a great number of very fine vessels and nervous filaments. Within the root we observe a kind of glue, some very fine filaments of which advance toward the small extremity, where they unite and form the stem, which passes through this small extremity to the skin: as the stem passes through the root, the other membrane is elongated in form of a tube, which closely invests the stem, and is entirely united to it; the stem having reached the surface of the skin, pierces the bottom of a small fossula between the papillæ, or sometimes a particular papilla, and there it meets the epidermis, which seems to be inverted round it, and to unite with it entirely: a sort of unctuous matter transudes through the sides of the fossula, which is bestowed on the stem, and accompanies it more or less, as it runs out from the skin, in form of a hair. Hairs differ in length, thickness and solidity, in the different parts of the body: those on the head are called by the general name of hairs; those which are disposed archwise above the eyes, supercilia, or eye-brows; those on the edges of the palpebræ, cilia, or eye-lashes; and those which surround the mouth, and cover the chin, the beard: in other parts of the body, they have no particular names; and their different lengths, thicknesses, &c. in all these parts are sufficiently known. Their natural figure seems to be rather cylindrical than angular.

TABLE

TABLE II.
OF THE
ANATOMY OF THE HUMAN BODY,
VIEWED POSTERIORLY.

THE SECOND ANATOMICAL TABLE OF THE MUSCLES, FASCIAS, LIGAMENTS,
NERVES, ARTERIES, VEINS, GLANDS, AND CARTILAGES
OF THE HUMAN BODY, EXPLAINED.

THE human body is composed of firm and liquid parts, commonly called solids and fluids; of the solid parts some are hard, others soft and flexible: the solid parts are the chief subjects of anatomy, properly so called; the history of the fluid parts comes into a system of anatomy, only occasionally. Anatomists ordinarily reduce all the solid parts under certain general classes, expressed by the common or generical names of bone, cartilage, ligament, fibre, membrane, vessel, artery, vein, nerve, muscle, gland, fat, viscus, organ, &c.

By bones, we mean the hardest, most solid, and most inflexible parts of the human body.

A cartilage is a whitish or pearl-coloured substance, softer than a bone, but harder than any other part, smooth, polished, pliable and elastic.

A ligament is a white, fibrous, compact substance, more pliable than a cartilage, difficult to be broken or torn, and yielding but little when drawn out with force.

The name of fibre is given to small filaments, which appear to be the most simple parts of the body, and which, by their different disposition and connexions, compose all the other parts: the fibres themselves differ in substance, being either membranous, fleshy,

L

tendinous

tendinous or bony; in direction, being either strait, oblique, longitudinal, transverse, circular, or spiral; and in size, being either large, small, long, or short.

By membrane we understand a pliable texture of vessels disposed or interwoven together in the same plane; they differ in thickness according to the number of their planes; these particular planes are termed laminae, and distinguished into external, internal, middle, &c. The difference of membranes in general depends on that of the vessels of which they are composed: small portions of membranes, especially when they are very thin, are called pelliculae; and some membranous laminae are united together by the intervention of a particular substance, composed of this sort of pellicles, and called the cellular or spongy substance.

Vessels are tubes, ducts or canals, more or less flexible, composed of different membranes, the strata of which are generally termed tunicae or coats: some of them are divided into branches, and these again into rami and ramifications, which gradually diminish, but still remain hollow. The general design of the vessels is to contain fluids, from the diversity of which they are distinguished into blood-vessels, vasa lactea, lymphatica, &c. The last and smallest extremities of all sorts of vessels are generally termed capillaries.

The blood-vessels are of two kinds, one of which receives the blood from the heart, and distributes it to all the parts of the body, which are named arteries; the other brings the blood from all the parts back to the heart, which are called veins, and some of these have the name of sinuses.

The arteries are thicker than the veins, and may be distinguished by this mark in dead bodies; and in living bodies they are known by a certain beating called the pulse. The veins are furnished with valves, that is, with small membranous sacculi, fixed at different distances to the sides of their cavities: the openings of these valves are broad, and turned toward that side where the vein is largest; they prevent the return of the blood that has passed through them: in some places these valves are single, in others double, triple, &c.

By

By nerves, anatomists mean the white ropes which proceed from the cerebrum, cerebellum, and spinal marrow, and are spread over all the parts of the body by filaments and ramifications: they are the organs of muscular motion, and animal sensation, and are, as well as the mind, dependent on the brain.

Muscles are bundles of fibres, of a reddish colour, and of different lengths, thick, soft, and capable of contradiction: the extremities are white, small, compact, and incapable of yielding; the middle portion of each moving fibre is said to be fleshy: the extremities are called tendinous, and the substance formed by them tendons.

Glands are clusters or *moleculæ*, distinguishable from all the other parts of the body, by their form, consistence, texture, and connexion: they are in general made up of arteries, veins, nerves, and other particular vessels, which are united together in their different folds, contortions, and intertexture, and invested by a membranous covering. The office of a gland is to separate from the mass of blood, by means of certain secretory vessels, fluids which they discharge either immediately, or by other vessels termed excretory; and these fluids are either accumulated in particular reservoirs, collected in the common cavities, or forced out of the body.

Fat and marrow are equivocal terms: by the first we generally understand an oily, soft, white or yellowish substance, of different consistences, collected between the skin and the muscles, in the interstices of the muscles, about the viscera, &c. and composed of an oily matter of different degrees of thickness or solidity: this oily matter is called fat, and *corpus adiposum* by anatomists.

Marrow is one kind of fat, and differs from it only in the fineness of the membranous texture, in the subtilty of the oily matter, and its situation in the bones.

By viscera, we commonly understand parts contained in a great cavity, without being connected to it through their whole extent or circumference; such as the stomach, intestines, &c. in the abdomen, and the lungs in the thorax.

Organ, or instrument, is a term given to every part capable of any function, whether it be simple or complex; and in this sense we talk of the organ of sight, of respiration, &c.

GENERAL DIVISION OF THE HUMAN BODY.

THE human body is divided into the head, neck, thorax, abdomen, upper extremities, and lower extremities. Each portion is to be examined, not only with regard to its external conformation, but also with regard to its internal structure or composition, and to the viscera or organs which it contains or supports.

 THE EXTERNAL PARTS OF THE HEAD, VIEWED POSTERIORLY.

a, b, c, d, The hairy scalp: the vertex at *a*, the parietal bone at *b*, the temporal bone at *c*, and the occipital bone at *d*: it covers the upper part of the os frontis. The uppermost part of the hairy scalp is termed the vertex; the back part, occiput; the lateral parts, the temples.

The Arteries on each side of the Hairy Scalp are these :

Arteria carotis externa, in general.
 Arteria temporalis.
 Arteria occipitalis.
 Arteria angularis, by communication.
 Arteria cervicalis posterior, by communication.
 Arteria vertebralis, by communication.
 Arteria carotis interna, by communication.

The Veins on each side of the Hairy Scalp are these :

Vena jugularis externa, in general.
 Vena jugularis externa posterior.
 Vena temporalis.
 Vena occipitalis.
 Vena vertebralis.
 Vena jugularis externa, by communication.
 Vena jugularis interna, by communication.
 Sinus lateralis duræ matris, by communication.
 Vena axillaris, by communication.
 Vena cephalica, by communication.

The

The Nerves on each side of the Hairy Scalp are these :

Nervi sub-occipitales, commonly called the tenth pair, from the medulla oblongata.

Par nonum, from the medulla oblongata.

Par primum cervicale.

Par secundum cervicale, by communication.

Ramus frontalis of the orbitary or ophthalmic nerve.

Nervi diaphragmatici, by communication.

Nervus sympatheticus minor, called the porta dura of the auditory nerve.

Nervus sympatheticus medius, or nerves of the eighth pair, from the medulla oblongata, by communication.

Nervus sympatheticus maximus, commonly termed intercostalis, by communication.

The face comprehends all that portion of the surface of the head, which lies between the hairy scalp and the neck, that is, the forehead, eye-brows, palpebræ, eyes, nose, mouth, chin, cheek, and ears, *e*. The external parts of the eyes are these: the anterior portion of the globe of the eye, the membrana conjunctiva, the cornea lucida, iris, pupilla, caruncula lacrymalis, angles of the palpebræ, and the cilia or hairs of each palpebra. The internal parts are, the globe of the eye, the tunica solerotica or cornea opaca, the coroides, arachnoides, chrystalline, vitreous humour, aqueous humour, the anterior and posterior chambers, the muscles, and the optic nerve.

The external parts of the ear are these: the great concha, the convex side of this concha, or hinder part of the ear, *e*; the great border, the fold or helix, the concavity, the broad eminence or anthelix, the small anterior eminence or tragus, the small posterior eminence or antitragus; lobe or lower extremity of the ear, *f*; and the meatus.

The external parts of the nose are these: the upper extremity or root of the nose; the arch or back, the sides of that arch; the tip of the nose, the alæ, the nares, and the septum narium: the internal parts are the cavity and bottom of the nares, the convolutions, the maxillary, sphenoidal, and frontal sinuses.

The

The external parts of the mouth are these: the lips, one upper, the other lower; the angles or commissures of the lips, the border or edge of each lip; the fossula, which runs from the septum narium to the edge of the upper lip; and the transverse fold, which separates the under lip from the chin.

The internal parts of the mouth are these: the palate, the septum palati, the uvula, gums, fræna of the lips, the tongue, its apex, roots, sides, and frænum.

The cheeks are the lateral parts of the face, reaching downward from the eyes and temples, between the nose and ears: the upper prominent part of the cheek, is commonly termed mala.

The chin is the anterior prominence, by which the lower part of the face is terminated, from whence it runs all the way to the neck: this under part of the chin is termed the basis, and it is distinguished from the throat by a transverse fold, which reaches from ear to ear: in the middle of the chin, there is sometimes a dimple, fossula, or depression.

The Exterior Arteries which belong to each side of the Face are these:

Arteria carotis externa.

Arteria carotis interna, by communication.

Arteria vertebralis, by communication.

Arteria cervicalis, by communication.

The Exterior Veins distributed on each side of the Face are these:

Vena jugularis externa.

Vena jugularis interna, by communication.

Vena vertebralis, by communication.

The Exterior Nerves spread on each side of the Face are these:

Nervus olfactorius.

Nervus opticus.

Nervus orbitarius sive ophthalmicus, which is the first branch of the fifth pair from the medulla oblongata.

Nervus maxillaris superior.

Nervus

Nervus maxillaris inferior.

Nervus trochlearis sive patheticus, which is the fourth pair.

Nervus motor oculi externus, sive muscularis externus, which is the sixth pair.

Nervus sympatheticus minimus, or portio dura of the auditory nerve.

Nervus sympatheticus medius, which is the eighth pair.

Nervus sympatheticus maximus sive universalis, commonly called intercostalis.

Nervus hypoglossus major, which is the ninth pair.

The second pair of the nervi cervicales.

The Arteries of the Forehead are these :

Arteria temporalis, which is a branch of the external carotid.

Arteria angularis, which is a branch of the internal carotid.

Arteria carotis interna, by communication.

The Veins of the Forehead are these :

Vena frontalis.

Vena temporalis.

Vena angularis.

Sinus orbitarius.

Sinus longitudinalis superior, by communication.

Sinus longitudinalis inferior, by communication.

Vena jugularis interna, by communication.

The Nerves of the Forehead are these :

Nervus orbitarius sive ophthalmicus, which is the first branch of the fifth pair from the medulla oblongata.

Nervus maxillaris superior.

Nervus maxillaris inferior.

Nervus

Nervus sympatheticus minor, which is the portio dura of the nervus auditorius.

The Arteries which go to the Eye are these :

Arteria temporalis, which is a branch of the external carotid.

Arteria maxillaris externa sive angularis, which is a branch of the external carotid.

Arteria maxillaris interna, which is a branch of the external carotid.

Arteria carotis interna.

The Veins which belong to the Eye are these :

Vena temporalis, which is a branch of the posterior external jugular.

Vena angularis, which is a branch of the anterior external jugular.

Vena frontalis, which is a branch of the anterior external jugular.

Sinus orbitarius.

Sinus longitudinalis, by communication.

Vena jugularis interna, by communication.

The Nerves belonging to the Eye are these :

Nervus olfactorius, by communication.

Nervus opticus.

Nervus motor communis, or the third pair.

Nervus trochlearis, or the fourth pair.

Nervus orbitarius sive ophthalmicus, a branch of the fifth pair.

Nervus motor externus.

Nervus sympatheticus minor, or the portio dura of the auditory nerve.

Nervus sympatheticus maximus sive universalis, commonly called intercostalis.

The

The Arteries distributed to the Nose are these :

The same arteries with those which go to the eye, among which the internal carotid supplies the nose by communication.

Arteria labiorum orbicularis, by communication.

The Veins belonging to the Nose are these :

All the veins already mentioned, as belonging to the eye.

The Nerves which go to the Nose are these :

Nervi olfactorii.

Nervus orbitarius sive ophthalmicus, a branch of the fifth pair, both immediately and by communication.

Nervi motores communes, or the third pair by communication.

Nervi maxillares superiores, branches of the sixth pair.

Nervus sympatheticus minimus.

Nervus sympatheticus medius, by communication.

The Arteries which go to the Ear are these :

Arteria temporalis, a branch of the external carotid.

Arteria auricularis, a branch of the temporalis.

Arteria occipitalis, by communication.

Arteria vertebralis, by means of the arteria basilaris, which is a continuation of it.

Arteria carotis interna, by communication with the arteria basilaris.

The Veins belonging to the Ear are these :

Vena temporalis.

Vena occipitalis.

Vena cervicalis.

Vena maxillaris, these three being branches of the jugularis externa.

Vena jugularis interna, by several communications.

Sinus petrosus duræ matris.

The Nerves distributed to the Ear are these :

Nervus maxillaris inferior, the third branch of the fifth pair.

Nervus auditorius, the seventh pair.

M

Nervus

Nervus sympatheticus minimus, the portio dura of the auditory nerve.

Nervus hypoglossus externus, the ninth pair, by communication.

Nervus sub-occipitalis, the tenth pair, by communication.

The second cervical pair.

Nervus sympatheticus medius, the eighth pair.

Nervus sympatheticus universalis, commonly called intercostalis.

The Arteries which go to the Mouth, Tongue, &c. are these :

The artery of the chin.

Arteria coronaria sive orbicularis labiorum, both being branches of the external carotid.

Arteria maxillaris interna.

Arteria sub-lingualis.

The Veins belonging to the Mouth, Tongue, &c. are these :

Vena maxillaris externa.

Vena maxillaris interna.

Venæ raninæ; all these are branches of the external jugular.

Vena jugularis interna, by several communications.

Vena gutturalis superior, a branch of the internal jugular.

Vena axillaris, when it sends off the guttural vein.

The Nerves distributed to the Mouth, Tongue, and Salivary Glands, &c. are these :

Nervus maxillaris superior.

Nervus maxillaris inferior, both branches of the fifth pair.

Nervus sympatheticus minimus, or portio dura of the auditory nerve.

Nervus sympatheticus medius, the eighth pair.

The ninth pair, from the medulla oblongata.

The second pair of cervical nerves.

Nervus sympatheticus maximus, by communication.

The cheeks on each side are furnished with arteries and veins from the nearest ramifications of the temporal and maxillary arteries and veins;

veins; and with nerves from the portio dura of the auditory nerve, and from the superior and inferior maxillary nerve.

THE EXTERNAL PARTS OF THE NECK, VIEWED POSTERIORLY.

g, h. THE neck in general is divided into the anterior part or throat, and posterior part or nape. The throat begins by an eminence, and terminates by a fossula; the posterior part or nape begins by a fossula at *g*, and terminates by an eminence at *h*. The neck contains the larynx, a part of the trachea arteria, the pharynx, a part of the oesophagus, the musculi cutanei, sterno-mastoidæi, sterno-hyoidæi, thyro-hyoidæi, omo-hyoidæi, splenius complexus, the musculi vertebrales, which lie upon the first seven vertebræ, and a portion of the medulla spinalis.

The Arteries which go to the Neck are these:

Arteriæ carotides, in general.
Arteriæ carotides externæ.
Arteria carotides internæ.
Arteriæ vertebrales.
Arteriæ cervicales.

The Veins belonging to the Neck are these:

Venæ jugulares, in general.
Venæ jugulares externæ.
Venæ jugulares internæ.
Venæ cervicales.
Venæ vertebrales.

The Nerves distributed to the Neck are these:

Nervi sympathetici minimi, or portio dura of the auditory nerve.
Nervi sympathetici medii, the eighth pair.
Nervi accessorii octavi paris.
The ninth pair.

Nervi sub-occipitales, or the tenth pair.

The seventh cervical pair.

Nervi sympathetici maximi.

THE EXTERNAL PARTS OF THE THORAX, VIEWED POSTERIORLY.

By the thorax, we commonly understand all that part of the body which answers to the extent of the sternum, ribs, and vertebræ of the back, both outwardly and inwardly.

The thorax is divided into the anterior part, called commonly the breast; the posterior part, *kl*, called the back; and the lateral parts, called the right and left sides. The external parts of the thorax, besides the skin, are principally the mammæ, and the muscles which cover the ribs and fill the spaces between them. In the mammæ, we see the papillæ or nipples, and a small coloured circle which surrounds them: the muscles are the pectorales majores and minores, subclavii, serrati majores, serrati superiores postici latissimi dorsi, and vertebrales; and to these we may add the muscles which cover the scapula. The internal parts of the thorax are contained in the large cavity of that portion of the trunk which is named the cavity of the breast; this cavity is lined by a membrane, named plura, and divided into two lateral cavities, by a membranous septum, named mediastinum, which is a production or duplicature of the plura. These parts are the heart, pericardium, trunk of the aorta, great arch of the aorta, trunks of the carotid arteries, the superior portion of the descending aorta, the intercostal arteries, the vena cava superior, vena azygos, subclavian veins, trunks of the jugular, vertebral and axillary veins, a portion of the aspera arteria, and of the œsophagus; the ductus lacteus or thoracicus, the lungs, pulmonary artery, pulmonary veins, &c.

The Arteries and Veins which particularly belong to the Thorax are these :

Arteriæ and venæ thoracicæ, superiores and inferiores.

Arteriæ and venæ mammariæ, internæ and externæ.

Arteriæ

Arteriæ and venæ intercostales, superiores and inferiores.

Arteriæ and venæ spinales, with the venal sinuses of the canal of the spine.

The Nerves distributed to the Thorax are these :

Nervi sympathetici medii, or eighth pair.

Nervi sympathetici universales, commonly called intercostales.

The last cervical pair.

The twelve dorsal pairs.

Nervi diaphragmatici.

The cavity of the thorax is terminated downward by the diaphragm, which parts it from the abdomen.

THE EXTERNAL PARTS OF THE ABDOMEN, VIEWED POSTERIORLY.

THE abdomen begins immediately under the thorax, and terminates at the bottom of the pelvis of the ossa innominata: its circumference or outer surface is divided into regions, of which there are three anterior, that is, the epigastric or superior region, the umbilical or middle region, and the hypogastric or lower region; there is but one posterior region, named regio lumbaris.

The epigastric region begins immediately under the appendix ensiformis, at a small superficial depression, called the pit of the stomach; and in adult subjects ends above the navel at a transverse line, supposed to be drawn between the last false ribs on each side. This region is subdivided into three parts; one middle, named epigastrium; and two lateral, termed hypochondria: the epigastrium takes in all that space which lies between the false ribs of both sides, and the hypochondria are the places covered by the false ribs.

The umbilical region begins, in adults, above the navel, at the transverse line already mentioned, and ends below the navel at another transverse line, supposed to be drawn parallel to the former, between the two cristæ of the os ilium: this region is likewise divided into three parts; one middle, which is properly the regio umbilicalis; and

and two lateral, called ilia or the flanks; and they comprehend the space between the false ribs and upper part of the os ilium on each side.

The hypogastric region is extended downward from the inferior limit of the umbilical region, and is divided into three parts; one middle, called pubis; and two lateral, called inguina or the groins.

The lumbar region is the posterior part of the abdomen, and comprehends all that space which reaches from the lowest ribs on each side, and the last vertebræ of the back, *l*, to the os sacrum, *m*, and neighbouring parts of the ossa ilium.

Lastly, the bottom of the abdomen, which answers to the pelvis of the skeleton, is terminated anteriorly by the pudenda or parts of generation, and posteriorly by the clunes or buttocks, *n*, and anus. The buttocks are separated by a fossa, *o*, which leads to the anus; and each buttock is terminated downward by a large fold, *p*, which distinguishes it from the rest of the thigh. This lumbar region takes in likewise, at *q*, the musculus quadratus lumborum on each side, the lower portions of the sacro-lumbares of the longissimus and latissimus dorsi, &c.

The space between the anus and parts of generation, is called perinœum, and is divided into two equal parts by a very distinct line, which is longer in males than in females.

The cavity of the abdomen, formed by the parts already mentioned, all which are covered by the skin and membrana adiposa, is lined on the inside by a particular membrane, called peritonœum: it is separated from the cavity of the thorax by the diaphragm, and terminated below by the muscoli levatores ani.

This cavity contains the stomach and the intestines, which are commonly divided into three small portions, named duodenum, jejunum, and ilium; and three large, called cœcum, colon, and rectum: it contains likewise the mesentery, mesocolon, omentum, liver, gall, bladder, spleen, pancreas, glands of the mesentery, vasa lactea, receptaculum chyli, kidneys, renal glands, ureters, bladder, and the internal parts of generation in both sexes.

The

The principal Arteries of the Abdomen are these :

Arteria epigastrica superior, which is the lowest portion of the
mammaria interna.

Aorta inferior.

Arteria coeliaca.

Arteria mesenterica superior.

Arteria renales, called formerly emulgentes.

Arteriæ spermaticæ.

Arteria mesenterica inferior.

Arteriæ lumbares.

Arteriæ iliacæ.

Arteriæ hypogastricæ.

Arteriæ epigastricæ inferiores.

Arteriæ hæmorrhoidales.

Arteriæ pudicæ.

The principal Veins of the Abdomen are these :

The inferior portions of the venæ mammariæ internæ.

Venæ renales.

Venæ lumbares.

Venæ spermaticæ.

Venæ iliacæ.

Venæ hypogastricæ.

Vena portæ ventralis.

Vena portæ hepaticæ.

Vena mesaraica major.

Vena splenica.

Vena mesaraica minor sive hæmorrhoidalis interna.

The principal Nerves of the Abdomen are these :

Nervi stomachici, formed by the extremity of the sympathetici
medii, or eighth pair.

Nervi sympathetici maximi, the inferior portion.

The two semilunar or plexiform ganglions.

Plexus stomachicus.

Plexus

Plexus hepaticus.
 Plexus splenicus.
 Plexus renalis.
 Plexus mesentericus superior.
 Plexus mesentericus inferior.
 Nervi lumbares.
 Nervi sacri.
 Nervi crurales, their origin.
 Nervi sciatici, their origin.

THE EXTERNAL PARTS OF THE UPPER EXTREMITIES, VIEWED
 POSTERIORLY.

THE whole arm is divided, as in the skeleton, into the shoulder, *r*; the arm properly so called, *s*; the fore-arm, *t*; and the hand, *u*: but to these we must here add the stump of the shoulder, the axilla or arm-pit, the elbow, *w*; the fold of the arm, and the hollow of the hand, *u*. What is called the stump of the shoulder, is formed by the fleshy belly of the musculus deltoides; and the axilla, by the corresponding edges of the pectoralis major, and latissimus dorsi. The elbow, *w*, answers to the olecranon; the fold of the arm is on the fore side of the articulation of the os humeri, with the bones of the fore-arm; and the hollow of the hand, *u*, is in the middle of the palm. The arm, properly so called, is principally covered, from the shoulder downward, by the biceps brachialis, and the three anconæi; the fore-arm is furnished with those muscles which move the radius on the ulna, and carpus on the fore-arm: the hand has few very considerable fleshy parts, except the thenar and hypothenar, between which the hollow of the hand is formed.

The Arteries of the whole Upper Extremity are these:

Arteria axillaris.
 Arteria humeralis.
 Arteria scapularis.

Arteria

Arteria articularis.
 Arteria brachialis.
 Arteria collateralis.
 Arteria cubitalis.
 Arteria radialis.
 Arteria interossea anterior.
 Arteriæ interosseæ posteriores.
 The arterial arch in the palm of the hand.

The Veins of the whole Upper Extremity are these :

Vena cephalica minor.
 Vena jugularis externa, by communication with the small cephalica.
 Vena axillaris.
 Venæ musculares.
 Venæ scapulares.
 Vena brachii cephalica.
 Vena brachii basilica.
 Venæ satellites arteriæ brachialis.
 Vena profunda superior.
 Vena mediana, that is, mediana cubitalis, mediana basilica, mediana
 radialis sive cephalica, and mediana media or major.
 Vena profunda cubiti.
 Vena basilica cubiti sive cubitalis.
 Vena cephalica cubiti sive radialis.
 Venæ cubiti satellites.
 Vena cephalica pollicis.
 Vena salvatella sive auricularis.
 Areolæ venosæ dorsi manus.

The Nerves of the whole Upper Extremity are these :

Nervi brachiales in general, formed by the last four or five cervical
 and first dorsal pairs.
 Nervus musculo-cutaneus.
 Nervus medianus.
 Nervus cubitalis.

N

Nervus

Nervus cutaneus internus.
 Nervus radialis.
 Nervus axillaris sive articularis.

THE EXTERNAL PARTS OF THE LOWER EXTREMITIES, VIEWED
 POSTERIORLY.

THE lower extremities of the whole body are divided, as those of the skeleton, into the thigh, *x*; leg, *y*; and foot, *z*. The thigh begins anteriorly on one side of the fold of the groin, and posteriorly at 1, a little above the lower half of the buttock: it terminates anteriorly at the patella on the knee, and posteriorly at the poples or ham, 2. It is formed chiefly by the muscles which surround the os femoris, and are themselves invested by the fascia lata, that is, the glutæus maximus, two vasti, crureus, biceps, triceps, semi-membranosus, semi-tendinosus, gracilis internus, rectus, and sartorius.

The leg has but very few muscles on the fore part; but a great many large ones behind, where the gastrocnemii and soleus form a kind of belly, at *y*, called the calf of the leg. The leg begins anteriorly at the knee, below the patella, and posteriorly at the poples, 2; and terminates at the ancle, 3. Besides the parts of the foot mentioned in the description of the skeleton, that convex part, *z*, near its articulation with the leg, is termed the neck of the foot or instep; and the under part, which is the base of the whole lower extremity, the sole of the foot: the posterior part, 4, is termed the heel; the fleshy parts are not more considerable than on the hand.

The Arteries of the whole Lower Extremity are these:

Arteria obturatrix, a branch of the hypogastrica.
 Arteria glutæa, a branch of the hypogastrica.
 Arteria sciatica, by communication.
 Arteria pudica, by communication.
 Arteria cruralis.
 Arteria poplitea.

Arteria

integuments; that is, the cutis or skin, the cuticula or scarf-skin, the nails and hairs, with the membrana adiposa.

The Cutis or Skin.

The skin is a substance of very large extent, made up of several kinds of tendinous, membranous, vascular, and nervous fibres; it is not easily torn, may be elongated in all directions, and afterwards recovers itself, as we see in fat persons, in women with child, and in swellings; and it is thicker and more compact in some places than in others. The outer surface of this substance is furnished with small eminences, which anatomists call papillæ, in which the capillary filaments of the cutaneous nerves terminate by small radiated pencils: these papillæ differ very much in figure and disposition, in the different parts of the body, and they may be distinguished into several kinds: the greatest part of them are flat, of different breadths, and separated by sulci, which form a kind of irregular lozenges. The papillæ of the palm of the hand, of the sole of the foot, and of the fingers and toes, are higher than on the other parts of the body; but they are smaller, closely united together, and placed in particular rows, which represent on the skin all kinds of lines, strait, crooked, waving, spiral, &c. These several lines are often distinctly visible in those parts of the palm of the hand which are next the first phalanges of the fingers. The red part of the lips is made up of papillæ, representing very fine hairs or villi closely united together. There is another particular kind under the nails; the papillæ being there more pointed, or in a manner conical, and turned obliquely toward the ends of the fingers. Those which are found in the hairy scalp, scrotum, &c. are still of other kinds. The papillæ of the first and second kinds appear to be surrounded at their bases by a soft mucilaginous and pretty viscid substance, which fills the interstices between them, and represents a kind of net-work or sieve, the meshes or holes of which surround each papilla. This substance is commonly called corpus reticulare or mucosum. The origin of this reticular or mucous body has not hitherto been sufficiently explained; and it has not been determined, whether it forms an universal integument, or whether it belongs more properly

properly to the skin than to the papillæ or epidermis. It is more probable that this vascular texture is only a continuation or production of the very small capillaries of the arteries and veins, which transmit only the serous parts of the blood, while the red part continues its course through wider ramifications, which more properly retain the name of blood-vessels. This vascular texture is of various forms and figures in the different parts of the body; it is not the same in the face, with what it is elsewhere; neither is it alike on all the parts of the face, as may be discovered by the most ordinary microscopes. It is most probable that this vascular texture, these papillæ or villi, are the external absorbents or mouths of the lymphatic vessels, and excretory ducts, of the perspirable vessels.

The inner surface of the skin is covered by very small tubercles, called commonly cutaneous glands: these tubercles are partly fixed in small fossulæ in the substance of the skin, which answer to the same number of small cavities in the corpus adiposum: their excretory ducts open on the outer surface of the skin, sometimes in the papillæ, and sometimes on one side of them, as may be seen on the ends of the fingers, even without a microscope. The greatest part of them furnish sweat, and others a fatty, oily matter, of different thicknesses, as in the hairy scalp, in the back, behind the ears, and at the lower part of the nose, where this matter may be squeezed out, in form of small worms. On the head, this is called the dandrif, and filth or nastiness on the other parts of the body. By macerating the skin in water, or in any other proper liquor, these corpuscles become more visible, especially in the skin of the lower part of the nose and of the axilla. The late M. Duverney demonstrated to the Royal Academy, that the structure of some of these cutaneous glands resembles the circumvolutions of small intestines plentifully stored with capillary vessels. The illustrious M. Morgagni, Professor at Padua, has given the name of *glandulæ sebaceæ* to those which furnish the unctuous matter above mentioned. Besides these corpuscles, there are other small solid bodies, almost of an oval figure, and contained in the substance of the skin; these are the roots or bulbs from whence the hairs arise, and some of them are situated within the inner surface of the skin.

The

The Cuticula Epidermis, or Scarf-Skin.

The outside of the skin is covered by a thin transparent web, closely joined to it, which is called epidermis, cuticula, or the scarf-skin: the substance of the cuticula appears to be very uniform on the side next the skin, and to be composed on the other side of a great number of very fine squamous laminae, without any appearance of a fibrous or vascular texture, except some small filaments by which it is connected to the papillae, and which perhaps are detached from thence: this substance is very solid and compact, but yet capable of being extended and thickened, as we see by steeping it in water, and by the blisters raised on the skin by vesicatories or any other means; and from thence it would seem that it is of a spongy texture. It yields very much in swellings, but not so much as the skin, without breaking or cracking. The origin of the epidermis is as obscure, as its regeneration is evident, sudden, and surprising; for let it be destroyed ever so often, it still grows again: hard and reiterated frictions loosen it insensibly, and presently afterward a new stratum arises, which thrusts the first outward, and may itself be loosened and thrust outward by a third stratum, and so on.

The epidermis adheres very closely to the cutaneous papillae, from which it may be separated by boiling; or, which is a much better way, by steeping it for a long time in cold water: it adheres still closer to the corpus reticulare, which is easily raised along with it: and they seem to be true portions or continuations of each other. The epidermis covers the skin through its whole extent, except at the places where the nails lie: it is marked with the same furrows and lozenges as the skin, and has the same openings and pores; and though it may be said to pass the bounds of the skin, where it is continued inward through the great openings, yet at those places it only loses the name of epidermis. When we examine narrowly the small pores, or holes, through which the sweat passes, the epidermis seems to enter these, in order to complete the excretory tubes of the cutaneous glands. The fossulae of the hairs have likewise the same productions of the epidermis, and it seems to give a coat or bark to the hairs themselves: the almost imperceptible ducts of the cutaneous pores are lined by it. Having macerated the
skin

skin for a long while in water, the epidermis, with all its elongations, may be separated from it, with even the hairs and their bulbs.

The Membrana Adiposa, and Fat.

This is not merely a single membrane, but a congeries of a great number of membranous laminæ, joined irregularly to each other at different distances, so as to form numerous interstices of different capacities, which communicate with each other: these interstices have been named cellulæ, and the substance made up of them, the cellulous substance. The thickness of the membrana adiposa is not the same all over the body, and depends on the number of laminæ of which it is made up. It adheres very closely to the skin, runs in between the muscles in general, and between their several fibres in particular, and communicates with the membrane which lines the inside of the thorax and abdomen: these cellular interstices are so many little sinuses, filled with an unctuous or oily juice, more or less liquid, which is called fat; it is secreted by the glandular membrane that surrounds it, deposited by its excretory ducts, and occasionally taken up by its absorbents, in a similar manner to that of the membranes in general, giving out and taking up the lubricating fluids that lie betwixt them. Fat is more fluid in living than in dead bodies; it melts with the heat of the fingers in handling it: this substance increases in quantity in the body, by rest and good living; and, on the contrary, diminishes by hard labour and a spare diet.

The Nails.

The nails are looked upon by some as productions of the cutaneous papillæ; and by others, as a continuation of the epidermis. This last opinion agrees with experiments made by maceration, by means of which the epidermis may be separated entire from the hands and feet, like a glove or sock: in this experiment we see the nails part from the papillæ, and go along with the epidermis, to which they remain united; and yet their substance and structure appear to be very different from the epidermis: their substance is like that of horn, and they are composed of several planes of longitudinal fibres soldered together. These strata
end

end at the extremity of each finger, and are all nearly of an equal thickness, but of different lengths: the external plane or stratum is the longest, and the rest decrease gradually, the innermost being the shortest; so that the nail increases in thickness from its union with the epidermis, where it is thinnest, to the end of the finger where it is thickest. The graduated extremities or roots of all the fibres of which these planes consist, are hollowed for the reception of the same number of very small oblique papillæ, which are continuations of the true skin, which having reached to the root of the nail, forms a semilunar fold in which that root is lodged: after this semilunar fold, the skin is continued on the whole inner surface of the nail, the papillæ insinuating themselves in the manner already said: the fold of the skin is accompanied by the epidermis to the root of the nail exteriorly, to which it adheres very closely. These parts are generally distinguished in the nail, the root, body, and extremity: the root is white, and in form of a crescent, and the greatest part of it hid under the semilunar fold already mentioned: the crescent and the fold lie in contrary directions to each other; the body of the nail is naturally arched, transparent, and appears of the colour of the cutaneous papillæ which lie under it; the extremity of the nail does not adhere to any thing, and still continues to grow as often as it is cut.

The Hairs.

The hairs belong as much to the integuments as the nails: their roots or bulbs lie toward that side of the skin which is next the membrana adiposa: the trunk, or beginning of the stem, perforates the skin; and the rest of the stem advances beyond the outer surface of the skin, to a certain distance, which is very various in the different parts of the body. When the different hairs are examined by a microscope, we find the roots more or less oval, the largest extremity being either turned toward, or fixed in the corpus adiposum; the smallest extremity is turned toward the skin, and in some places fixed in the skin. This oval root is covered by a whitish strong membrane, in some measure elastic; and it is connected either with the skin, with the corpus adiposum, or with both, by a great number of very fine vessels

vessels and nervous filaments. Within the root we observe a kind of glue, some very fine filaments of which advance toward the small extremity, where they unite and form the stem, which passes through this small extremity to the skin: as the stem passes through the root, the outer membrane is elongated in form of a tube, which closely invests the stem, and is entirely united to it; the stem having reached the surface of the skin, pierces the bottom of a small fossula between the papillæ, or sometimes a small papilla, and there it meets the epidermis, which seems to be inverted round it, and to unite with it entirely: a sort of unctuous matter transudes through the sides of the fossula, which is bestowed on the stem, and accompanies it more or less, as it runs out from the skin, in form of a hair. Hairs differ in length, thickness, and solidity, in the different parts of the body: those on the head are called by the general name of hairs; those which are disposed archwise above the eyes, supercilia, or eye-brows; those on the edges of the palpebræ, cilia, or the eye-lashes; and those which surround the mouth, and cover the chin, the beard: in other parts of the body, they have no particular names; and their different lengths, thicknesses, &c. in all these parts, are sufficiently known. Their natural figure seems to be rather cylindrical than angular.

TABLE III.
OF THE
ANATOMY OF THE HUMAN BODY,
VIEWED Laterally.

THE THIRD ANATOMICAL TABLE OF THE MUSCLES, FASCIAS, LIGAMENTS,
NERVES, ARTERIES, VEINS, GLANDS, AND CARTILAGES
OF THE HUMAN BODY, EXPLAINED.

THE Human Body is composed of firm and liquid parts, commonly called solids and fluids; of the solid parts some are hard, others soft and flexible: the solid parts are the chief subjects of anatomy, properly so called; the history of the fluid parts comes into a system of anatomy, only occasionally. Anatomists ordinarily reduce all the solid parts under certain general classes, expressed by the common or generical names of bone, cartilage, ligament, fibre, membrane, vessel, artery, vein, nerve, muscle, gland, fat, viscus, organ, &c.

By bones, we mean the hardest, most solid, and most inflexible parts of the human body.

A cartilage is a whitish or pearl-coloured substance, softer than a bone, but harder than any other part, smooth, polished, pliable and elastic.

A ligament is a white, fibrous, compact substance, more pliable than a cartilage, difficult to be broken or torn, and yielding but little when drawn out with force.

The name of fibre is given to small filaments, which appear to be the simple parts of the body, and which, by their different disposition and connexions, compose all the other parts: the fibres themselves differ in substance, being either membranous, fleshy, tendinous

tendinous or bony; in direction, being either strait, oblique, longitudinal, transverse, circular, or spiral; and in size, being either large, small, long, or short.

By membrane we understand a pliable texture of vessels, nerves, &c. interwoven together in the same plane; they differ in thickness according to the number of their planes: these particular planes are termed *laminae*, and distinguished into external, internal, middle, &c. The difference of membranes in general depends on that of the vessels of which they are composed: small portions of membranes, especially when they are very thin, are called *pelliculae*; and some membranous *laminae* are united together by the intervention of a particular substance, composed of this sort of pellicles, and called the cellular or spongy substance.

Vessels are tubes, ducts or canals, more or less flexible, composed of different membranes, the strata of which are generally termed *tunicae* or coats: some of them are divided into branches, and these again into *rami* and ramifications, which gradually diminish, but still remain hollow. The general design of the vessels is to contain fluids, from the diversity of which they are distinguished into blood-vessels, *vasa lactea*, *lymphatica*, &c. The last and smallest extremities of all sorts of vessels are generally termed *capillaries*.

The blood-vessels are of two kinds, one of which receives the blood from the heart, and distributes it to all the parts of the body, which are named *arteries*; the other brings the blood from all the parts back to the heart, which are called *veins*, and some of these have the name of *sinuses*.

The *arteries* are thicker than the *veins*, and may be distinguished by this mark in dead bodies; and in living bodies they are known by a certain beating, called the pulse. *Veins* are larger on the surface of the body than the *arteries*, and are furnished with valves, that is, with small membranous *sacculi*, fixed at different distances to the sides of their cavities: the openings of these valves are broad, and turned toward that side where the vein is largest; they prevent the return of the blood that has passed through them: in some places these valves are single, in others double, triple, &c.

By nerves, Anatomists mean the white ropes which proceed from the cerebrum, cerebellum, and spinal marrow, and are spread over all the parts of the body by filaments and ramifications: they are the organs of muscular motion and animal sensation, and are, as well as the mind, dependent on the brain.

Muscles are bundles of fibres, of a reddish colour, and of different lengths, thick, soft, and capable of contraction: the extremities are white, small, compact, and incapable of yielding; the middle portion of each moving fibre is said to be fleshy: the extremities are called tendinous, and the substance formed by them tendons.

Glands are clusters or *moleculæ*, distinguishable from all the other parts of the body, by their form, consistence, texture, and connexion: they are in general made up of arteries, veins, nerves, and other particular vessels, which are united together in their different folds, contortions, and intertexture, and invested by a membranous covering. The office of a gland is to separate from the mass of blood, by means of certain secretory vessels, fluids, which they discharge either immediately, or by other vessels termed excretory; and these fluids are either accumulated in particular reservoirs, collected in the common cavities, or forced out of the body.

Fat and marrow are equivocal terms: by the first we generally understand an oily, soft, white or yellowish substance, of different consistences, collected between the skin and the muscles, in the interstices of the muscles, about the viscera, &c. and composed of an oily matter of different degrees of thickness or solidity: this oily matter is called fat, and *corpus adiposum* by Anatomists.

Marrow is one kind of fat, and differs from it only in the fineness of the membranous texture, in the subtilty of the oily matter, and its situation in the bones.

By viscera, we commonly understand parts contained in a great cavity, without being connected to it through their whole extent or circumference; such are the stomach, intestines, &c. in the abdomen, and the lungs in the thorax.

Organ, or instrument, is a term given to every part capable of any function, whether it be simple or complex; and in this sense we talk of the organ of sight, of respiration, &c.

GENERAL

GENERAL DIVISION OF THE HUMAN BODY.

THE human body is divided into the head, neck, thorax, abdomen, upper extremities, and lower extremities. Each portion is to be examined, not only with regard to its external conformation, but also with regard to its internal structure or composition, and to the viscera or organs which it contains or supports.

THE EXTERNAL PARTS OF THE HEAD, VIEWED Laterally.

a, b, c, d, e, The hairy scalp: it covers the upper part of the os frontis at *a*, the parietal bone at *b*, the os temporum at *c*, the vertex at *d*, and the os occipitis at *e*. The uppermost part of the hairy scalp is termed the vertex; the back part, occiput; the lateral parts, the temples.

The Arteries on each side of the Hairy Scalp are these:

Arteria carotis externa, in general.
Arteria temporalis.
Arteria occipitalis.
Arteria angularis, by communication.
Arteria cervicalis posterior, by communication.
Arteria vertebralis, by communication.
Arteria carotis interna, by communication.

The Veins on each side of the Hairy Scalp are these:

Vena jugularis externa, in general.
Vena jugularis externa posterior.
Vena temporalis.
Vena occipitalis.
Vena vertebralis.
Vena jugularis externa anterior, by communication.
Vena jugularis interna, by communication.
Sinus lateralis duræ matris, by communication.
Vena axillaris, by communication.
Vena cephalica, by communication.

The

The Nerves on each side of the Hairy Scalp are these :

Nervi sub-occipitales, commonly called the tenth pair, from the medulla oblongata.

Par nonum, from the medulla oblongata.

Par primum cervicale.

Par secundum cervicale, by communication.

Nervi diaphragmatici, by communication.

Ramus frontalis of the orbitary or ophthalmic nerve.

Nervus sympatheticus minor, called the portio dura of the auditory nerve.

Nervus sympatheticus medius, or nerves of the eighth pair, from the medulla oblongata, by communication.

Nervus sympatheticus maximus, commonly termed intercostalis, by communication.

The face comprehends all that portion of the head which lies between the hairy scalp and the neck; that is, the forehead, *f*; eyebrows, *g*; palpebræ, *hh*; eyes, *i*; nose, *k*; mouth, *l*; chin, *m*; cheeks, *n*; and ears, *o*. The external parts of the eyes are these: the anterior portion of the globe of the eye, the membrana conjunctiva, the cornea lucida, iris, pupilla, caruncula lacrymalis, angles of the palpebræ, and the cilia or hairs of each palpebra. The internal parts are, the globe of the eye, the tunica solerotica or cornea opaca, the coroides, arachnoides, chrystalline, vitreous humour, aqueous humour, the anterior and posterior chambers, the muscles, and the optic nerve.

The external parts of the ear are these: the great concha, the convex side of this concha, or hinder part of the ear, the great border, the fold or helix, the cavity, the broad eminence or anthelix, the small anterior eminence or tragus, the small posterior eminence or antitragus, lobe or lower extremity of the ear, and the meatus.

The external parts of the nose are these: the upper extremity or root of the nose, the arch or back, the sides of that arch, the tip of the nose, the alæ, the nares, and the septum narium; the convolutions, the maxillary, sphenoidal, and frontal sinuses.

The

The external parts of the mouth are these: the lips, one upper, the other lower; the angles or commissures of the lips, the border or edge of each lip; the fossula, which runs from the septum narium to the edge of the upper lip; and the transverse fold, which separates the under lip from the chin.

The internal parts of the mouth are these: the palate, the septum palati, the uvula, the amygdalæ, gums, fræna of the lips; the tongue, its apex, roots, sides, and frænum.

The cheeks are the lateral parts of the face, reaching downward from the eyes and temples, between the nose and ears: the upper prominent part of the cheek, *n*, is commonly termed mala.

The chin is the anterior protuberance, by which the lower part of the face is terminated, from whence it runs all the way to the neck: this under part of the chin is termed the basis, and it is distinguished from the throat by a transverse fold, which reaches from ear to ear: in the middle of the chin, there is sometimes a fossula, depression, or dimple.

The Exterior Arteries which belong to each side of the Face are these:

Arteria carotis externa.

Arteria carotis interna, by communication.

Arteria vertebralis, by communication.

Arteria cervicalis, by communication.

The Exterior Veins distributed on each side of the Face are these:

Vena jugularis externa.

Vena jugularis interna, by communication.

Vena vertebralis, by communication.

The Exterior Nerves spread on each side of the Face are these:

Nervus olfactorius.

Nervus opticus.

Nervus orbitarius sive ophthalmicus, which is the first branch of the fifth pair from the medulla oblongata.

Nervus maxillaris superior.

Nervus

Nervus maxillaris inferior.

Nervus trochlearis sive patheticus, which is the fourth pair.

Nervus motor oculi externus, sive muscularis externus, which is the sixth pair.

Nervus sympatheticus minimus, or portio dura of the auditory nerve.

Nervus sympatheticus medius, which is the eighth pair.

Nervus sympatheticus maximus, sive universalis, commonly called intercostalis.

Nervus hypoglossus major, which is the ninth pair.

The second pair of the nervi cervicales.

The Arteries of the Forehead are these :

Arteria temporalis, which is a branch of the external carotid.

Arteria angularis, which is a branch of the internal carotid.

Arteria carotis interna, by communication.

The Veins of the Forehead are these :

Vena frontalis.

Vena temporalis.

Vena angularis.

Sinus orbitarius.

Sinus longitudinalis superior, by communication,

Sinus longitudinalis inferior, by communication.

Vena jugularis interna, by communication.

The Nerves of the Forehead are these :

Nervus orbitarius sive ophthalmicus, which is the first branch of the fifth pair from the medulla oblongata.

Nervus maxillaris superior.

Nervus maxillaris inferior.

Nervus sympatheticus minor, which is the portio dura of the nervus auditorius.

Nervus

The Arteries which go to the Eye are these:

- Arteria temporalis, which is a branch of the external carotid.
Arteria maxillaris externa, sive angularis, which is a branch of the external carotid.
Arteria maxillaris interna, which is a branch of the external carotid.
Arteria carotis interna.

The Veins which belong to the Eye are these:

- Vena temporalis, which is a branch of the posterior external jugular.
Vena angularis, which is a branch of the anterior external jugular.
Vena frontalis, which is a branch of the anterior external jugular.
Sinus orbitarius.
Sinus longitudinalis, by communication.
Vena jugularis interna, by communication.

The Nerves belonging to the Eye are these:

- Nervus olfactorius, by communication.
Nervus opticus.
Nervus motor communis, or the third pair.
Nervus trochlearis, or the fourth pair.
Nervus orbitarius sive ophthalmicus, a branch of the fifth pair.
Nervus maxillaris superior, a branch of the fifth pair.
Nervus motor externus.
Nervus sympatheticus minor, or the portio dura of the auditory nerve.
Nervus sympatheticus maximus, sive universalis, commonly called intercostalis.

The Arteries distributed to the Nose are these:

- The same arteries with those which go to the eye, among which the internal carotid supplies the nose by communication.
Arteria labiorum orbicularis, by communication.

The Veins belonging to the Nose are these:

- All the veins already mentioned, as belonging to the eye.

The Nerves which go to the Nose are these :

- Nervi olfactorii.
- Nervus orbitarius sive ophthalmicus, a branch of the fifth pair, both immediately and by communication.
- Nervi maxillares superiores, branches of the sixth pair.
- Nervi motores communes, or the third pair by communication.
- Nervus sympatheticus minimus.
- Nervus sympatheticus medius, by communication.

The Arteries which go to the Ear are these :

- Arteria temporalis, a branch of the external carotid.
- Arteria auricularis, a branch of the temporalis.
- Arteria occipitalis, by communication.
- Arteria vertebralis, by means of the arteria basilaris, which is a continuation of it.
- Arteria carotis interna, by communication with the arteria basilaris.

The Veins belonging to the Ear are these :

- Vena temporalis.
- Vena occipitalis.
- Vena cervicalis.
- Vena maxillaris, these three being branches of the jugularis externa.
- Vena jugularis interna, by several communications.
- Sinus petrosus duræ matris.

The Nerves distributed to the Ear are these :

- Nervus maxillaris inferior, the third branch of the fifth pair.
- Nervus auditorius, the seventh pair.
- Nervus sympatheticus minimus, the portio dura of the auditory nerve.
- Nervus hypoglossus externus, the ninth pair by communication.
- Nervus sub-occipitalis, the tenth pair by communication.
- The second cervical pair.
- Nervus sympatheticus medius, the eighth pair.
- Nervus sympatheticus universalis, commonly called intercostalis.

The

The Arteries which go to the Mouth, Tongue, &c. are these :

The artery of the chin.

Arteria coronaria sive orbicularis labiorum, both being branches of the external carotid.

Arteria maxillaris interna.

Arteria sub-lingualis.

The Veins belonging to the Mouth, Tongue, &c. are these :

Vena maxillaris externa.

Vena maxillaris interna.

Venæ raninæ; all these are branches of the external jugular.

Vena jugularis interna, by several communications.

Vena gutturalis superior, a branch of the internal jugular.

Vena axillaris, when it sends off the guttural vein.

The Nerves distributed to the Mouth, Tongue, and Salivary Glands, &c. are these :

Nervus maxillaris superior.

Nervus maxillaris inferior, both branches of the fifth pair.

Nervus sympatheticus minimus, or portio dura of the auditory nerve.

Nervus sympatheticus medius, the eighth pair.

The ninth pair, from the medulla oblongata.

The second pair of cervical nerves.

Nervus sympatheticus maximus, by communication.

The cheeks on each side are furnished with arteries and veins from the nearest ramifications of the temporal arteries and veins, and with nerves from the portio dura of the auditory nerve, and from the superior and inferior maxillary nerves.

THE EXTERNAL PARTS OF THE NECK, VIEWED Laterally.

THE neck in general is divided into the anterior part or throat, and posterior part or nape. The throat begins by an eminence at *a*, and terminates by a fossula; the nape begins by a fossula at *b*, and terminates by an eminence at *c*. The neck contains the larynx at *a*, a part of the trachea arteria, the pharinx at *d*, a part of the œsophagus, the musculi cutanei, sterno-mastoidæi, sterno-hyoidæi, thyro-hyoidæi, omo-hyoidæi, splenius complexus, the musculi vertebrales, which lie upon the first seven vertebræ, and a portion of the medulla spinalis.

The Arteries which go to the Neck are these :

Arteriæ carotides, in general.
 Arteriæ carotides externæ.
 Arteria carotides internæ.
 Arteriæ vertebrales.
 Arteriæ cervicales.

The Veins belonging to the Neck are these :

Venæ jugulares, in general.
 Venæ jugulares externæ.
 Venæ jugulares internæ.
 Venæ cervicales.
 Venæ vertebrales.

The Nerves distributed to the Neck are these :

Nervi sympathetici minimi, or portio dura of the auditory nerve.
 Nervi sympathetici medii, the eighth pair.
 Nervi accessorii octavi paris.
 The ninth pair.
 Nervi sub-occipitales, or the tenth pair.
 The seventh cervical pair.
 Nervi sympathetici maximi.

THE

THE EXTERNAL PARTS OF THE THORAX, VIEWED Laterally.

By the thorax, we commonly understand all that part of the body which answers to the extent of the sternum, ribs, and vertebræ of the back, both outwardly and inwardly.

The thorax is divided into the anterior part, *ab*, called commonly the breast; the posterior part, *cd*, called the back; and the parts, called the right, *e*, and the left sides. The external parts of the thorax are principally the mammæ, and the muscles which cover the ribs and fill the spaces between them. In the mammæ, we see the papillæ or nipples, and a small coloured circle which surrounds them: the muscles are the pectorales majores and minores, subclavii, serrati majores, serrati posteriores postici, latissimus dorsi, and vertebrales; and to these we may add the muscles which cover the scapula. The internal parts of the thorax are contained in the large cavity of that portion of the trunk which is named the cavity of the breast; this cavity is lined by a membrane, named plura, and divided into two lateral cavities, by a membranous septum, named mediastinum, which is a production or duplicature of the plura. These parts are the heart, pericardium, trunk of the aorta, great arch of the aorta, trunks of the carotid arteries, subclavian arteries, trunks of the vertebral and axillary arteries, the superior portion of the descending aorta, the intercostal arteries, the vena cava superior, vena azygos, subclavian veins, trunks of the jugular, vertebral and axillary veins, a portion of the aspera arteria, and of the œsophagus; the ductus lacteus or thoracicus, the lungs, pulmonary artery, pulmonary veins, &c.

The Arteries and Veins which particularly belong to the Thorax are these :

Arteriæ and venæ thoracicæ, superiores and inferiores.

Arteriæ and venæ mammariæ, internæ and externæ.

Arteriæ and venæ intercostales, superiores and inferiores.

Arteriæ and venæ spinales, with the venal sinuses of the canal of the spine.

The

The Nerves distributed to the Thorax are these :

Nervi sympathetici medii, or eighth pair.

Nervi sympathetici universales, commonly called intercostales.

The last cervical pair.

The twelve dorsal pairs.

Nervi diaphragmatici.

The cavity of the thorax is terminated downward by the diaphragm, which parts it from the abdomen.

THE EXTERNAL PARTS OF THE ABDOMEN, VIEWED Laterally.

THE abdomen begins immediately under the thorax, and terminates at the bottom of the pelvis of the ossa innominata: its circumference or outer surface is divided into regions, of which there are three anterior, that is, the epigastric or superior region, the umbilical or middle region, and the hypogastric or lower region; there is but one posterior region, named regio lumbaris.

The epigastric region begins immediately under the appendix ensiformis, at a small superficial depression, called the pit of the stomach; and in adult subjects ends above the navel at a transverse line, supposed to be drawn between the last false ribs on each side. This region is subdivided into three parts; one middle, named epigastrium; and two lateral, termed hypocondria: the epigastrium takes in all that space which lies between the false ribs of both sides, and the hypocondria are the places covered by the false ribs.

The umbilical region begins, in adults, above the navel, at the transverse line already mentioned, and ends below the navel at another transverse line, supposed to be drawn parallel to the former, between the two cristæ of the os ilium: this region is likewise divided into three parts; one middle, at *f*, which is properly the regio umbilicalis; and two lateral, called ilia or the flanks; and they comprehend the space *g*, between the false ribs and upper part of the os ilium on each side.

The

The hypogastric region is extended downward from the inferior limit of the umbilical region, and is divided into three parts; one middle, at *h*, called pubis; and two lateral, at *ii*, called inguina or the groins.

The lumbar region is the posterior part of the abdomen, and comprehends all that space which reaches from the lowest ribs on each side, and the last vertebræ of the back, to the os sacrum, and neighbouring parts of the os ilium.

Lastly, the bottom of the abdomen, which answers to the pelvis of the skeleton, is terminated anteriorly by the pudenda or parts of generation, and posteriorly by the clunes or buttocks, and anus. The buttocks are separated by a fossa, which leads to the anus; and each buttock is terminated downward by a large fold, which distinguishes it from the rest of the thigh. This lumbar region takes in likewise the musculus quadratus lumborum on each side, the lower portions of the sacro-lumbares of the longissimus and latissimus dorsi, the musculus sacer, &c.

The space between the anus and parts of generation, is called perinæum, and is divided into two equal lateral parts by a very distinct line, which is longer in males than in females.

The cavity of the abdomen, formed by the parts already mentioned, all which are covered by the skin and membrana adiposa, is lined on the inside by a particular membrane, called peritonæum: it is separated from the cavity of the thorax by the diaphragm, and terminated below by the muscoli levatores ani.

This cavity contains the stomach and the intestines, which are commonly divided into three small portions, named duodenum, jejunum, and ilium; and three large, called cœcum, colon, and rectum: it contains likewise the mesentery, mesocolon, omentum, liver, gall, bladder, spleen, pancreas, glands of the mesentery, vasa lactea, receptaculum chyli, kidneys, renal glands, ureters, bladder, and the internal parts of generation in both sexes.

The principal Arteries of the Abdomen are these:

Arteria epigastrica superior, which is the lowest portion of the mamma interna.

Arteria

Arteria inferior.
 Arteria cœliaca.
 Arteria mesenterica superior.
 Arteria renales, called formerly emulgentes.
 Arteriæ spermaticæ.
 Arteria mesenterica inferior.
 Arteriæ lumbares.
 Arteriæ iliacæ.
 Arteriæ hypogastricæ.
 Arteriæ epigastricæ inferiores.
 Arteriæ hæmorrhoidales.
 Arteriæ pudicæ.

The principal Veins of the Abdomen are these :

The inferior portions of the venæ mammariæ internæ.
 Venæ renales.
 Venæ lumbares.
 Venæ spermaticæ.
 Venæ iliacæ.
 Venæ hypogastricæ.
 Vena portæ ventralis.
 Vena portæ hepaticæ.
 Vena mesaraica major.
 Vena splenica.
 Vena mesaraica minor sive hæmorrhoidalis interna.

The principal Nerves of the Abdomen are these :

Nervi stomachici, formed by the extremity of the sympathetici medii, or eighth pair.
 Nervi sympathetici maximi, the inferior portion.
 The two semilunar or plexiform ganglions.
 Plexus stomachicus.
 Plexus hepaticus.
 Plexus splenicus.
 Plexus renalis.

Plexus

Plexus mesentericus superior.

Plexus mesentericus inferior.

Nervi lumbares.

Nervi sacri.

Nervi crurales, their origin.

Nervi sciatici, their origin.

THE EXTERNAL PARTS OF THE UPPER EXTREMITIES, VIEWED Laterally.

THE whole arm is divided, as in the skeleton, into the shoulder, *a*; the arm, properly so called, *b*; the fore-arm, *c*; and the hand, *d*: but to these we must here add the axilla or arm-pit, *e*; the elbow, *f*; the fold of the arm, *g*; and the hollow of the hand, *h*. What is called the stump of the shoulder, is formed by the fleshy belly of the musculus deltoides; and the axilla, *e*, by the corresponding edges of the pectoralis major, and latissimus dorsi. The elbow, *f*, answers to the olecranon: the fold of the arm, *g*, is on the fore side of the articulation of the os humeri, with the bones of the fore-arm, and the hollow of the hand, *h*, in the middle of the palm. The arm, properly so called, is principally covered, from the shoulder downward, by the biceps brachialis, and the three anconæi; the fore-arm is furnished with those muscles which move the radius on the ulna, and the carpus on the fore-arm: the hand has few very considerable fleshy parts, except the thenar and hypothenar, between which the hollow of the hand is formed.

The Arteries of the whole Upper Extremity are these:

Arteria axillaris.

Arteria humeralis.

Arteria scapularis.

Arteria articularis.

Arteria brachialis.

Q

Arteria

Arteria collateralis.
 Arteria cubitalis.
 Arteria radialis.
 Arteria interossea anterior.
 Arteriæ interosseæ posteriores.
 The arterial arches in the palm of the hand.

The Veins of the whole Upper Extremity are these :

The cephalica minor.
 Vena jugularis externa, by communication with the small cephalica.
 Vena axillaris.
 Venæ musculares.
 Venæ scapulares.
 Vena brachii cephalica.
 Vena brachii basilica.
 Venæ satellites arteriæ brachialis.
 Vena profunda superior.
 Vena mediana, that is, mediana cubitalis, mediana basilica, mediana
 radialis sive cephalica, and mediana media or major.
 Vena profunda cubiti.
 Vena basilica cubiti sive cubitalis.
 Vena cephalica cubiti sive radialis.
 Venæ cubiti satellites.
 Vena cephalica pollicis.
 Vena salvatella sive auricularis.
 Areolæ venosæ dorsi manus.

The Nerves of the whole Upper Extremity are these :

Nervi brachiales in general, formed by the last four or five cervical
 and first dorsal pairs.
 Nervus musculo-cutaneus.
 Nervus medianus.
 Nervus cubitalis.
 Nervus cutaneus internus.

Nervus

Nervus radialis.

Nervus axillaris sive articularis.

THE EXTERNAL PARTS OF THE LOWER EXTREMITIES, VIEWED Laterally.

THE lower extremities of the whole body are divided, as those of the skeleton, into the thigh, *a*; leg, *b*; and foot, *c*. The thigh begins anteriorly on one side of the fold of the groin, at *d*: and posteriorly, a little above the lower half of the buttock, *d*; it terminates laterally at *e*; anteriorly at the patella, *f*; on the knee, and posteriorly, at the poples or ham, *g*. It is formed chiefly by the muscles which surround the os femoris, and are themselves invested by the fascia lata, that is, the glutæus maximus, two vasti, crureus, biceps, triceps, semi-membranosus, semi-tendinosus, gracilis internus, gracilis anterior or rectus, and sartorius.

The leg has but very few muscles on the fore part, but a great many large ones behind, where the gastrocnemii and soleus form a kind of belly, called the calf of the leg. The leg begins anteriorly at the knee, at *h*; below the patella, and posteriorly, at the poples, *g*; and it terminates below at the ancles, at *i* externally, and at *k* internally. Besides the parts of the foot mentioned in the description of the skeleton, that convex part, *l*, near its articulation with the leg, is termed the neck of the foot; and the under part, *m*, which is the basis of the whole lower extremity, the sole of the foot: the fleshy parts are not more considerable on the foot than on the hand: the posterior part, *n*, is termed the heel.

The Arteries of the whole Lower Extremity are these:

Arteria obturatrix, a branch of the hypogastrica.

Arteria glutæa, a branch of the hypogastrica.

Arteria sciatica, by communication.

Arteria pudica, by communication.

Arteria cruralis.

Arteria poplitea.

Arteria tibialis anterior.
 Arteria tibialis posterior.
 Arteria peronæa.
 Arteria plantaris.

The Veins of the whole Lower Extremity are these:

Vena obturatrix.
 Vena glutæa.
 Vena cruralis.
 Vena magna saphena.
 Vena sciatica.
 Vena parva saphena, sive saphena externa.
 Vena poplitea.
 Vena tibialis.
 Vena peronæa.
 Vena plantaris.

The Nerves of the whole Lower Extremity are these:

Nervus cruralis, formed by a complication of the five lumbares, especially of the first four.
 Nervus sciaticus, formed by the union of the last two lumbares, and first three sacri.
 Nervus sympatheticus maximus, by communication with the nervi lumbares and sacri.
 Nervus popliteus.
 Nervus sciaticus internus, sive popliteus internus.
 Nervus sciaticus externus, sive popliteus externus.
 Nervus plantaris externus.
 Nervus plantaris internus.

A DESCRIPTION OF THE COMMON INTEGUMENTS OF THE BODY.

ALL the parts of the human body are invested by several common and universal coverings, to which Anatomists give the name of integuments;

integuments; that is, the cutis or skin, the cuticula or scarf-skin, the nails and hairs, with the membrana adiposa.

The Cutis or Skin.

The skin is a substance of very large extent, made up of several kinds of tendinous, membranous, vascular, and nervous fibres; it is not easily torn, may be elongated in all directions, and afterwards recovers itself, as we see in fat persons, in women with child, and in swellings; and it is thicker and more compact in some places than in others. The outer surface of this substance is furnished with small eminences, which Anatomists call papillæ, in which the capillary filaments of the cutaneous nerves terminate by small radiated pencils: these papillæ differ very much in figure and disposition, in the different parts of the body, and they may be distinguished into several kinds: the greatest part of them are flat, of different breadths, and separated by sulci, which form a kind of irregular lozenges. The papillæ of the palm of the hand, the sole of the foot, and the fingers and toes, are higher than on the other parts of the body; but they are smaller, closely united together, and placed in particular rows, which represent on the skin all kinds of lines, strait, crooked, waving, spiral, &c. These several lines are often distinctly visible in those parts of the palm of the hand which are next the first phalanges of the fingers. The red part of the lips is made up of papillæ, representing very fine hairs or villi closely united together. There is another particular kind under the nails; the papillæ being there more pointed, or in a manner conical, and turned obliquely toward the ends of the fingers. Those which are found in the hairy scalp, scrotum, &c. are still of other kinds. The papillæ of the first and second kinds appear to be surrounded at their bases by a soft mucilaginous and pretty viscid substance, which fills the interstices between them, and represents a kind of net-work or sieve, the meshes or holes of which surround each papilla. This substance is commonly called corpus reticulare or mucosum. The origin of this reticular or mucous body has not hitherto been sufficiently explained; and it has not been determined, whether it forms an universal integument, or whether it belongs more properly

properly to the skin than to the papillæ or epidermis. It is more probable that this vascular texture is only a continuation or production of the very small capillaries of the arteries and veins, which transmit only the serous part of the blood, while the red part continues its course through wider ramifications, which more properly retain the name of blood-vessels. This vascular texture is of various forms and figures in the different parts of the body; it is not the same in the face with what it is elsewhere; neither is it alike on all the parts of the face, as may be discovered by the most ordinary microscopes. It is most probable that this vascular texture, these papillæ or villi, are the external absorbents or mouths of the lymphatic vessels, and excretory ducts of the vessels of perspiration.

The inner surface of the skin is covered by very small tubercles, called commonly cutaneous glands: these tubercles are partly fixed in small fossulæ in the substance of the skin, which answer to the same number of small cavities in the corpus adiposum: their excretory ducts open on the outer surface of the skin, sometimes in the papillæ, and sometimes on one side of them, as may be seen in the ends of the fingers, even without a microscope. The greatest part of them furnishes sweat and other fatty, oily matter, of different thicknesses, as in the hairy scalp, in the back, behind the ears, and at the lower part of the nose, where this matter may be squeezed out, in form of small worms. On the head, this is called the dandrif, and filth or nastiness on the other parts of the body. By macerating the skin in water, or in any other proper liquor, these corpuscles become more visible, especially in the skin of the lower part of the nose and of the axilla. The late M. Duverney demonstrated to the Royal Academy, that the structure of some of these cutaneous glands resemble the circumvolutions of small intestines plentifully stored with capillary vessels. The illustrious M. Morgagni, Professor at Padua, has given the name of glandulæ sebaceæ to those which furnish the unctuous matter above mentioned. Besides these corpuscles, there are other small solid bodies, almost of an oval figure, contained in the substance of the skin; these are the roots or bulbs from whence the hairs arise, and some of them are situated within the inner surface of the skin.

The

The Cuticula, Epidermis, or Scarf-Skin.

The outside of the skin is covered by a thin transparent web, closely joined to it, which is called epidermis, cuticula, or the scarf-skin: the substance of the cuticula appears to be very uniform on the side next the skin, and to be composed on the other side of a great number of very fine squamous laminae, without any appearance of a fibrous or vascular texture, except some small filaments by which it is connected to the papillae, and which perhaps are detached from thence: this substance is very solid and compact, but yet capable of being extended and thickened, as we see by steeping it in water, and by the blisters raised on the skin by vesicatories or any other means; and from thence it would seem that it is of a spongy texture. It yields very much in swellings, but not so much as the skin, without breaking or cracking. The origin of the epidermis is as obscure as its regeneration is evident, sudden, and surprising; for, let it be destroyed ever so often, it still grows again: hard and reiterated frictions loosen it insensibly, and presently afterward a new stratum arises, which thrusts the first outward, and may itself be loosened and thrust outward by a third stratum, and so on.

The epidermis adheres very closely to the cutaneous papillae, from which it may be separated by boiling; or, which is a much better way, by steeping for a long time in cold water: it adheres still closer to the corpus reticulare, which is easily raised along with it: and they seem to be true portions or continuations of each other. The epidermis covers the skin through its whole extent, except at the places where the nails lie: it is marked with the same furrows and lozenges as the skin, and has the same openings and pores; and though it may be said to pass the bounds of the skin, where it is continued inward through the great openings, yet at these places it only loses the name of epidermis. When we examine narrowly the small pores, or holes, through which the sweat passes, the epidermis seems to enter these, in order to complete the excretory tubes of the cutaneous glands. The fossulae of the hairs have likewise the same productions of the epidermis, and it seems to give a sort of coat or bark to the hairs themselves: lastly, the almost imperceptible ducts of the cutaneous pores are lined by it. Having
macerated

macerated the skin for a long while in water, the epidermis, with all its elongations, may be separated from it, with even the hairs and their bulbs.

The Membrana Adiposa, and Fat.

This is not merely a single membrane, but a congeries of a great number of membranous laminæ, joined irregularly to each other at different distances, so as to form numerous interstices of different capacities, which communicate with each other: these interstices have been named cellulæ, and the substance made up of them, the cellulous substance. The thickness of the membrana adiposa is not the same all over the body, and depends on the number of laminæ of which it is made up. It adheres very closely to the skin, runs in between the muscles in general, and between their several fibres in particular, and communicates with the membrane which lines the thorax and abdomen: these cellular interstices are so many little sinuses, filled with an unctuous or oily juice, more or less liquid, which is called fat; it is secreted by the glandular membrane that surrounds it, deposited by its excretory ducts, and occasionally taken up by its absorbents, in a similar manner to that of the membranes in general, giving out and taking up the lubricating fluids that lie betwixt them. Fat is more fluid in living than in dead bodies; it melts with the heat of the fingers in handling it: this substance increases in quantity in the body by rest and good living; and, on the contrary, diminishes by hard labour and a spare diet.

The Nails.

The nails are looked upon by some as productions of the cutaneous papillæ; and by others, as a continuation of the epidermis. This last opinion agrees with experiments made by maceration, by means of which the epidermis may be separated entire from the hands and feet, like a glove or sock: in this experiment we see the nails part from the papillæ, and go along with the epidermis, to which they remain united; and yet their substance and structure appear to be very different from that of the epidermis: their substance is like that of horn, and they are composed

composed of several planes of longitudinal fibres soldered together. These strata end at the extremity of each finger, and are all nearly of an equal thickness, but of different lengths: the external plane or stratum is the longest, and the rest decrease gradually, the innermost being the shortest; so that the nail increases in thickness from its union with the epidermis, where it is thinnest, to the end of the finger, where it is thickest. The graduated extremities or roots of all the fibres of which these planes consist, are hollowed for the reception of the same number of very small oblique papillæ, which are continuations of the true skin, which, having reached to the root of the nail, forms a semilunar fold, in which that root is lodged: after this semilunar fold, the skin is continued on the whole inner surface of the nail, the papillæ insinuating themselves in the manner already said: the fold of the skin is accompanied by the epidermis to the nail exteriorly, to which it adheres very closely. Three parts are generally distinguished in the nail, the root, body, and extremity: the root is white, and in form of a crescent, and the greatest part of it hid under the semilunar fold already mentioned: the crescent and the fold lie in contrary directions to each other: the body of the nail is naturally arched, transparent, and appears of the colour of the cutaneous papillæ which lie under it; the extremity of the nail does not adhere to any thing, and still continues to grow as often as it is cut.

The Hairs.

The hairs belong as much to the integuments as the nails: their roots or bulbs lie toward that side of the skin which is next the membrana adiposa: the trunk, or beginning of the stem, perforates the skin; and the rest of the stem advances beyond the outer surface of the skin to a certain distance, which is very various in the different parts of the body. When the different hairs are examined by a microscope, we find the roots more or less oval, the largest extremity being either turned toward, or fixed in the corpus adiposum: the smallest extremity is turned toward the skin, and in some places fixed in the skin. This oval root is covered by a whitish strong membrane, in some measure elastic; and it is connected either to the skin, to

R

the

the corpus adiposum, or to both, by a great number of very fine vessels and nervous filaments. Within the root we observe a kind of glue, some very fine filaments of which advance toward the small extremity, where they unite and form the stem, which passes through this small extremity to the skin: as the stem passes through the root, the other membrane is elongated in form of a tube, which closely invests the stem, and is entirely united to it; the stem, having reached the surface of the skin, pierces the bottom of a small fossula between the papillæ, or sometimes a particular papilla, and there it meets the epidermis, which seems to be invested round it, and to unite with it entirely: a sort of unctuous matter transudes through the sides of the fossula, which is bestowed on the stem, and accompanies it more or less, as it runs out from the skin, in form of a hair. Hairs differ in length, thickness, and solidity, in the different parts of the body: those on the head are called by the general name of hairs; those which are disposed archwise above the eyes, supercilia, or eye-brows; those on the edges of the palpebra, cilia, or the eye-lashes; and those which surround the mouth, and cover the chin, the beard: in other parts of the body, they have no particular names; and their different lengths, thicknesses, &c. in all these parts are sufficiently known. Their natural figure seems to be rather cylindrical than angular.

TABLE I.
OF THE
ANATOMY OF THE BODY OF A TIGER,
VIEWED Laterally.

THE FIRST ANATOMICAL TABLE OF THE MUSCLES, FASCIAS, LIGAMENTS,
NERVES, ARTERIES, VEINS, GLANDS, AND CARTILAGES
OF A TIGER, EXPLAINED.

The Muscles &c. in the Head, viewed laterally.

A A a. EPICRANIUS or muscle of the scalp: *A A*, the tendinous expansion that goes to the elevator of the upper lip, and wing of the nose; *a*, the fleshy part which runs over a part of the orbicular muscle of the eye-lid, and it is inserted into the cutis or skin.

b c d e, The orbicular muscle of the eye-lid: *e*, the origin of the fibres, from the ligament by which the conjunction of the eye-lids, in the great canthus, is tied to the nasal part of the os unguis.

f g, The corrugator of the eye-brow; *f*, its origin; at *g*, it is inserted into the skin.

i k l m m n o, The elevator of the upper lip and corner of the mouth: *i k*, its origin from the epicranium; at *l*, it arises from the bone near the inner angle of the eye; *m m n*, its insertion into the skin and orbicular muscle of the mouth.

p q, The lateral dilator of the nostril and upper lip.

r s t t u w x, Zygomaticus: *t t*, its insertion into the orbicularis of the mouth; *w x*, its insertion into the anterior cartilage of the outer ear: the office of this muscle is to pull down the anterior cartilage of the outer ear, and raise the corner of the mouth.

z z & *B, C*, The orbicular muscle of the mouth; *g*, fibres which intermix with the fibres of the nasal muscle of the upper lip.

1 2, The depressor of the lower lip.

3 4, Part of the latissimus colli, which, at 4, is inserted into the lower jaw-bone.

5, The elevators of the chin, where they are inserted into the skin; their fibres are intermixed with the spungy membranes of the chin.

6, The anterior dilator of the nostril.

8, Membrana pituitaria.

9, Vena angularis, which is a branch of the external anterior jugular vein here protuberating: it runs to the great or internal angle of the orbit, sending branches on each side to the muscles and integuments; it sends out a branch through the lateral cartilages of the nose, which is distributed to the nares, and another which runs down in a winding course to the upper lip.

10, A branch of the vena temporalis.

11, Arteria angularis.

12, Branches of the nervus maxillaris inferior: they are branches of the third branch of the fifth pair.

The Muscles, &c. of the Outer Ear, viewed laterally.

a b b c d e e, Retrahens: *c d e e*, the upper or anterior part of the retrahens seen through the origins; this part is inserted tendinous into the ear, a little below the insertion of its middle part: *b b*, the middle part of the retrahens, inserted into the external ear in the middle of its convexity, about one third part of the way from the root of the ear to the tip: *a*, the inferior or posterior part of the retrahens, coming from its origin, under the middle part, to be inserted into the posterior side of the convex part of the ear, lower than the medius, near the insertion of the lateral depressor, *n n o*.

k, The anterior cartilage of the outer ear.

l, The lateral muscle of the anterior cartilage of the outer ear: it arises above the orbit of the eye, and is inserted into the anterior cartilage of the outer ear.

m, The depressor of the anterior border of the outer ear.

n n o, The

n n o, The lateral depressor of the outer ear, arising at *n n*, from the quadratus colli: it is inserted into the lower angle of the outer ear posteriorly.

p q, The outer ear; *q*, the inside of the outer ear.

Muscles, &c. in the Neck, viewed laterally.

3 4 a a b c d d, Latissimus colli, or quadratus of the neck: *b*, its origin from the sternum, a little below the top; *4*, its insertion into the lower jaw-bone; *c*, a membranous part going over the jugular vein, from which the fleshy fibres of the lateral depressor of the ear arise; *d d*, the edge by which it is attached to that part of the fascia of the superior part of the trapezius which runs over the external surface of the levator humeri proprius.

f g h i k l m n, Levator humeri proprius: *g*, that part which arises tendinous from the processus mastoidæus; *h*, the part which arises by thin fleshy fibres from the tendino-membranous part of the trapezius, or sends a membranous tendon to the ridge of the occiput; *l*, the portion which lies under some of the part, *f g h k*, and arises from the transverse processes of the four uppermost vertebræ of the neck near their extremities (its origin is the same with the angularis, called levator scapulæ proprius in the human body); *m*, the end near its insertion into the humerus between the biceps and brachiaëus internus. This muscle is composed of the levator humeri proprius, and the anterior part of the deltoïdes; they are united at *n*, where there is a little clavicle between these two muscles.

o p q r r s t u w x x, The upper part of the trapezius: *o p*, the origin of the fleshy part; *p*, the thickest part; *q q*, a part which, in this subject, is thin but fleshy: the fleshy fibres are inclosed between two fasciæ; the external fascia runs over the levator humeri proprius, and is attached to the edge of the quadratus colli, the internal fascia goes on the internal surface of the levator humeri proprius: *t*, a thin tendinous part; *x x*, the origin of the trapezius from the ligament of the neck. The fleshy fibres of this muscle run in the same direction, and are joined in with the levator humeri proprius; it is inserted along with part of the levator humeri into the fascia, which covers the
extending

extending muscles on the cubit, and into the tendinous surface of the infra spinatus.

y y z, The inferior part of the trapzius: *y y*, the origin; its insertion is from *z* to *y*, into the spine of the scapula. It is attached to the latissimus dorsi by tendinous fibres, which intersect the tendinous and carnous fibres both of this muscle and the latissimus dorsi, and firmly adhere to both; these tendinous threads run from the ligamentum colli towards the lower angle of the muscle, so that it makes a sort of double tendon for the trapezius to lie in at *z*.

Upon the neck are seen branches of the cervical nerves, veins, and arteries, which go to the integuments.

Muscles, &c. on the Shoulder and Trunk, viewed laterally.

a b f g h h i i l l l m m n, Membrana carnosae: *a*, the thickest fleshy part, which becomes tendinous, and goes to be inserted with the latissimus dorsi and teres major into the humerus; *b*, a thick fleshy part running upon the extensors of the cubit; *f*, a fleshy part which runs into the duplicature of this membrane, &c. as it goes towards the thigh; *i i h h m*, a tendino-membranous part which runs over the loins, part of the back, and part of the abdomen; *l l l*, a faint appearance of the outline of the latissimus dorsi.

t t x z, Pectoralis: *t t*, its origin from the aponeurosis of the external oblique muscle of the abdomen; this part is inserted into the head of the os humeri internally; *x*, a part arising from about two thirds of the inferior part of the sternum, which ends in a fascia descending down the muscles, on the inside the cubit; *z*, a large vein which branches in the fleshy part of the membrana carnosae.

The blood-vessels and nerves marked on the thorax, are those distributed to the integuments which are taken off: the nerves come from the nervi dorsales or costales, and nervi lumbares; the arteries, from the arteriæ intercostales inferiores; and the arteriæ lumbares, and the veins, from the venæ lumbares.

g, The tail.

Muscles

Muscles, &c. in the Left Upper Limb or Extremity, as they appear under the Membrana Carnosa; and Remarks where it is principally attached.

N O P, Triceps brachii: *N*, the head, which is called extensor longus major; *O*, the short head of the triceps, called the extensor brevis; *P*, the head, called brachialis extensor longus minor. The short head, *O*, arises from the humerus, the other two from the scapula; their insertion is into the ancon.

a b, Extensor carpi radialis longus: *a*, the fleshy part; *b*, the tendon, the lower part of which runs under the tendon of the extensor of the thumb, and under a ligament common to it, and the extensor communis digitorum, at *t*.

c c, The extensor of the thumb.

d, Extensor carpi radialis brevis.

e, Extensor digitorum communis.

f, Extensor ulnaris.

o, A cellular, spungy, or tendino-membranous substance, lying over the protuberating parts of these joints, and immediately under the skin.

p q, Flexor carpi ulnaris: at *p*, the fleshy fibres appear under the membrane, and also under its own tendinous surface; *q*, tendinous fibres going off from this muscle to intermix with the ligaments of this articulation.

R r, Flexor digitorum profundus: *R*, the fleshy part appearing under the tendinous surface of this muscle, as well as the carnos membrane.

s, The tendon of the sublimis.

t, t, The intermuscular ligament, to part of which the carnos membrane has some adhesion.

u, Marks the ligaments arising at *u*, from the orbicular bone, and running obliquely downwards and forwards.

w, Ligaments covering and confining the bending tendons.

xx, Vena plantaris externa.

y, Nervus plantaris externus.

z, A small

z, A small nerve coming from under the ligaments on the other side the carpus, and descending in an oblique manner to join the nervus plantaris externus.

The carnos membrane joins in with the membranous expansion, which is sent down the cubit by part of the pectoralis, and with other membranous productions from the ligaments; it forms a sort of ligament, inclosing the tendons of the extending muscles, and confines them in their proper places.

♂ & c. The nails.

The Muscles, &c. in the Left Lower Limb, viewed laterally.

a b c d e f g h i K k l m n o p q r s t u w x y z ♂, Fascia lata, and musculus fascia latae, with the membrana carnos, and expansions of the muscles.

a, The origin of the musculus fasciæ latae, from the spine of the illium.

b, The anterior fleshy part; *c*, the posterior fleshy part; *d*, the tendon.

e f, The part under which the glutæus externus lies, and from which it has a fleshy origination.

g h i, The part under which the biceps tibiæ lies; this muscle, in its superior part, arises from the fascia lata.

k, The semi-tendinosus lying under the said fascia, from which it also arises in the superior part.

K, The patella with its external lateral ligament, which binds it to the os femoris, and its inferior anterior ligament, which binds it to the tibia, protuberating under the fasciæ.

l, The extensor longus digitorum pedis; *m*, peronæus; *n*, flexor digitorum pedis; *o*, gemellus.

p, Tendons formed by these fasciæ and expansions, to join in with the extensors of the tarsus.

q, Nerves expanded upon these fasciæ, or sent off to the external parts, as the adiposa membrane and cutis. They are branches of the sciatic nerve.

r, The tendons of the peronæi muscles protuberating.

The

s. The tendons of the extensors of the toes.

t, Tendons of the flexors of the toes.

w, Veins arising from the toes, &c. called venæ plantares: they run into the vena tibialis posterior.

x, Nervus plantaris externus.

About z, these fasciæ have an attachment as they pass over the tendon and ligaments.

q, A cellular, spongy, or tendino-membranous substance, lying immediately under the skin, to which it closely adheres, and over the protuberating parts of these joints.

The fascial membrano-tendinous expansions, &c. cover all these muscles, ligaments, blood-vessels, nerves, &c. forming a pretty strong coat over them; the muscles, &c. only making their appearance by protuberating under them, which they will do even when they are covered by the external skin.

A A, &c. The nails.

Muscles, &c. protuberating under the Membrana Carnosa, in the Right Upper Limb, viz. on the Cubit, Carpus, Metacarpus, and Extremity of the Limb, viewed laterally.

a b, Extensor carpi radialis: a, the fleshy part; b, the tendon.

c, The tendon of the extensor of the thumb.

d, Biceps cubiti.

f, The flexor digitorum manus.

g, Flexor carpi radialis.

k, The tendon of the extensor communis digitorum manus.

b b, &c. A cellular or spongy tendino-membranous substance, lying over the protuberating parts of these joints, and immediately under the skin.

m, Vena cephalica.

n, Vena plantaris interna.

o, Nervus plantaris internus.

p, The tendons of the flexors digitorum manus.

r r, &c. The nails.

Muscles, &c. in the internal Side of the Right Lower Limb, as they appear through, or protuberate under the Fascias which cover them, viewed laterally.

a, The fleshy part of the tibialis anticus.

b, The fleshy part of the sartorius.

c, The tendons of the extensor digitorum pedis.

d, The tendons of the flexor digitorum pedis.

g, The tendon formed by the semi-tendinosus, biceps, cruris, &c. to go to the heel.

h k, The direction of the tendinous fibres of the fascia are here marked as they run over the inside of the leg, &c. about *h*, they are pretty strong, under which the vena saphena is scarcely discernible, forming a strong tendinous fascia, which joins in with the tendon of the extensor digitorum pedis, at *k*.

l, A cellular, spongy, tendino-membranous substance, lying immediately under the skin, to which it closely adheres, and over the protuberating parts of these joints.

m, Vena saphena.

n, Branches of the vena saphena.

o, Vena plantaris interna, or a continuation of the vena saphena.

p, Nervus plantaris internus.

q, A branch of the nervus cruralis.

r r r, The nails.

TABLE I.
OF THE
ANATOMY OF THE BODY OF A FOWL,
VIEWED Laterally.

THE FIRST ANATOMICAL TABLE OF THE MUSCLES, FASCIAS, LIGAMENTS,
NERVES, ARTERIES, VEINS, GLANDS, AND CARTILAGES
OF THE BODY OF A FOWL, EXPLAINED.

THE Body of a Fowl is composed of firm and liquid parts, commonly called solids and fluids : of the solid parts, some are hard, others soft and flexible : the solid parts are the chief subjects of anatomy, properly so called ; the history of the fluid parts comes into a system of anatomy, only occasionally. Anatomists ordinarily reduce all the solid parts under certain general classes, expressed by the common or generical names of bone, cartilage, ligament, fibre, membrane, vessel, artery, vein, nerve, muscle, gland, fat, viscus, organ, &c.

By bones, we mean the hardest, most solid, and most inflexible parts of the animal body.

A cartilage is a whitish or pearl-coloured substance, softer than a bone, but harder than any other part, smooth, polished, pliable and elastic.

A ligament is a white, fibrous, compact substance, more pliable than a cartilage, difficult to be broken or torn, and yielding but little when drawn out with force.

The name of fibre is given to small filaments, which appear to be the simple parts of the body, and which, by their different disposition and connexions, compose all the other parts : the fibres themselves

differ in substance, being either membranous, fleshy, tendinous, or bony; in direction being either strait, oblique, longitudinal, transverse, circular, or spiral; and in size, being either large, small, long or short.

By membrane, we understand a pliable texture of vessels, nerves, &c. interwoven together in the same plane: they differ in thickness according to the number of their planes; these particular planes are termed laminæ, and distinguished into external, internal, and middle, &c. The difference of membranes in general depends on that of the vessels of which they are composed: small portions of membranes, especially when they are very thin, are called pelliculæ; and some membranous laminæ are united together by the intervention of a particular substance, composed of this sort of pellicles, and called the cellular or spongy substance.

Vessels are tubes, ducts, or canals, more or less flexible, composed of different membranes, the strata of which are generally termed tunicæ or coats; some of them are divided into branches, and these again into rami and ramifications, which gradually diminish, but still remain hollow. The general design of the vessels is to contain fluids; from the diversity of which they are distinguished into blood-vessels, vasa lactea, lymphatica, &c. The last and smallest extremities of all sorts of vessels are generally termed capillares.

The blood-vessels are of two kinds; one of which receives the blood from the heart, and distributes it to all the parts of the body, which are named arteries; the other brings the blood from all the parts back to the heart, which are called veins, and some of these have the name of sinuses.

The arteries are thicker than the veins, and may be distinguished by this mark in dead bodies; and in living bodies they are known by a certain beating called the pulse: veins are larger on the surface of the body than the arteries, and are furnished with valves, that is, with small membranous sacculi, fixed at different distances to the sides of their cavities; the openings of these valves are broad, and turned toward that side where the vein is largest: they prevent the return of the blood that has passed through them: in some places these valves are single, in others double, triple, &c.

By

By nerves, anatomists mean the white ropes which proceed from the cerebrum, cerebellum, and spinal marrow, and are spread over all the parts of the body by filaments and ramifications: they are the organs of muscular motion and animal sensation, and are, as well as the mind, dependent on the brain.

Muscles are bundles of fibres of a reddish colour, and of different lengths; thick, soft, and capable of contraction: the extremities are white, small, compact, and incapable of yielding: the middle portion of each moving fibre is said to be fleshy; the extremities are called tendinous, and the substance formed by them tendons.

Glands are clusters or *moleculæ*, distinguishable from all the other parts of the body by their form, consistence, texture, and connexion: they are in general made up of arteries, veins, nerves, and other particular vessels, which are united together in their different folds, contortions, and intertexture, and invested by a membranous covering. The office of a gland is to separate from the mass of blood, by means of certain secretory vessels, fluids which they discharge either immediately or by other vessels termed excretory; and these fluids are either accumulated in particular reservoirs, collected in the common cavities, or forced out of the body.

Fat and marrow are equivocal terms: by the first we generally understand an oily, soft, white, or yellowish substance, of different consistences, collected between the skin and the muscles, in the interstices of the muscles, about the viscera, &c. and composed of an oily matter of different degrees of thickness or solidity: this oily matter is called fat, and *corpus adiposum* by anatomists.

Marrow is one kind of fat, and differs from it only in the fineness of the membranous texture, in the subtilty of the oily matter, and its situation within the bones.

By viscera we commonly understand parts contained in a great cavity, without being connected to it through their whole extent or circumference: such are the stomach, intestines, &c. in the abdomen, and lungs in the thorax.

Organ or instrument is a term given to every part capable of any function, whether it be simple or comp'lex; and in this sense, we talk of the organ of sight, of respiration, &c.

GENERAL

GENERAL DIVISION OF THE BODY OF A FOWL.

THE body of a fowl is divided into the head, neck, thorax, abdomen, upper extremities, and lower extremities. Each portion is to be examined, not only with regard to its external conformation, but also with regard to its internal structure or composition, and to the viscera or organs which it sustains or supports.

 THE EXTERNAL PARTS OF THE HEAD, VIEWED Laterally.

a b c d e, The scalp: it covers the upper part of the os frontis at *a*, the parietal bone at *b*, the os temporum at *c*, the vertex at *d*, and the os occipitis at *e*. The upper part of the scalp is termed the vertex, the back part occiput, the lateral parts the temples.

The Arteries on each side of the Scalp are these:

Arteria carotis externa, in general.
 Arteria temporalis.
 Arteria occipitalis.
 Arteria angularis, by communication.
 Arteria cervicalis posterior, by communication.
 Arteria vertebralis, by communication.
 Arteria carotis interna, by communication.

The Veins on each side of the Scalp are these:

Vena jugularis externa, in general.
 Vena jugularis externa posterior.
 Vena temporalis.
 Vena occipitalis.
 Vena vertebralis.
 Vena jugularis externa anterior, by communication.
 Vena jugularis interna, by communication.
 Sinus lateralis duræ matris, by communication.

Vena

Vena axillaris, by communication.

Vena cephalica, by communication.

The Nerves on each side of the Scalp are these :

Nervi sub-occipitales, commonly called the tenth pair, from the medulla oblongata.

Pars nonum, from the medulla oblongata.

Pars primum cervicale.

Pars secundum cervicale, by communication.

Nervi diaphragmatici, by communication.

Ramus frontalis of the orbitary or ophthalmic nerve.

Nervus sympatheticus minor, called the portio dura of the auditory nerve.

Nervus sympatheticus medius, or nerves of the eighth pair, from the medulla oblongata, by communication.

Nervus sympatheticus maximus, commonly termed intercostalis, by communication.

The face comprehends all that portion of the head which lies between the scalp and the neck; that is, the forehead, *f*; palpebræ, *h h*; nose, *k*; mouth, *ll*; chin, *m*; cheeks, *n*; and ears, *o*. The external parts of the eye are these:—the anterior portion of the globe of the eye, the membrana conjunctiva, the cornea lucida, iris, pupilla, caruncula lachrymalis, angles of the palpebræ. The internal parts are:—the globe of the eye, the tunica sclerotica, or cornea opaca, the carotides, arachnoides, chrystalline, vitreous humour, aqueous humour, the anterior and posterior chambers, the muscles, and the optic nerve.

The external parts of the ears are these:—the great concha, *o*; the convex side of this concha, *p*, or hinder part of the ear.

The external parts of the nose are these:—the upper extremity or root of the nose, *q*; the arch or back, *r*; the side of that arch, *s*; the alæ, *t*; the nares and the septum narium, *u*; the convolutions, the maxillary, sphenoidal,^r and frontal sinuses.

The external parts of the mouth are these:—the beak; one upper, *w*, the other lower, *x*; the angles or commissures, *y*.

The

The internal parts of the mouth are these :—the palate ; the tongue, its apex, sides, and frænum.

The cheeks are the lateral parts of the face, reaching downward from the eyes and temples, between the nose and ears.

The chin is the anterior protuberance, by which the lower part of the face is terminated at *m*, from whence it runs all the way to the neck : this under part of the chin is termed its basis ; and it is distinguished from the throat by a transverse fold, which reaches from ear to ear.

The Exterior Arteries which belong to each side of the Face are these :

Arteria carotis externa.

Arteria carotis interna, by communication.

Arteria vertebralis, by communication.

Arteria cervicalis, by communication.

The Exterior Veins distributed on each side of the Face are these :

Vena jugularis externa.

Vena jugularis interna, by communication.

Vena vertebralis, by communication.

The Exterior Nerves spread on each side of the Face are these :

Nervus olfactorius.

Nervus opticus.

Nervus orbitarius sive ophthalmicus, which is the first branch of the fifth pair from the medulla oblongata.

Nervus maxillaris superior.

Nervus maxillaris inferior.

Nervus trochlearis sive patheticus, which is the fourth pair.

Nervus motor oculi externus, sive muscularis externus, which is the sixth pair.

Nervus sympatheticus minimus, or the portio dura of the auditory nerve.

Nervus sympatheticus medius, which is the eighth pair.

Nervus

Nervus sympatheticus maximus, sive universalis, commonly called intercostalis.

Nervus hypoglossus major, which is the ninth pair.

The second pair of the nervi cervicales.

The Arteries of the Forehead are these :

Arteria temporalis, which is a branch of the external carotid.

Arteria angularis, which is a branch of the internal carotid.

Arteria carotis interna, by communication.

The Veins of the Forehead are these :

Vena frontalis.

Vena temporalis.

Vena angularis.

Sinus orbitarius.

Sinus longitudinalis superior, by communication.

Sinus longitudinalis inferior, by communication.

Vena jugularis interna, by communication.

The Nerves of the Forehead are these :

Nervus orbitarius sive ophthalmicus, which is the first branch of the fifth pair from the medulla oblongata.

Nervus maxillaris superior.

Nervus maxillaris inferior.

Nervus sympatheticus minor, which is the portio dura of the nervus auditorius.

The Arteries which go to the Eye are these :

Arteria temporalis, which is a branch of the external carotid.

Arteria maxillaris externa sive angularis, which is a branch of the external carotid.

Arteria maxillaris interna, which is a branch of the external carotid.

Arteria carotis interna.

The Veins which belong to the Eye are these :

Vena temporalis, which is a branch of the posterior external jugular.
 Vena angularis, which is a branch of the anterior external jugular.
 Vena frontalis, which is a branch of the anterior external jugular.
 Sinus orbitarius.
 Sinus longitudinalis, by communication.
 Vena jugularis interna, by communication.

The Nerves belonging to the Eye are these :

Nervus olfactorius, by communication.
 Nervus opticus.
 Nervus motor communis, or the third pair.
 Nervus trochlearis, or the fourth pair.
 Nervus orbitarius sive ophthalmicus, a branch of the fifth pair.
 Nervus maxillaris superior, a branch of the fifth pair.
 Nervus motor externus.
 Nervus sympatheticus minor, or the portio dura of the auditory nerve.
 Nervus sympatheticus maximus sive universalis, commonly called intercostalis.

The Arteries distributed to the Nose are these :

The same arteries with those which go to the eye, among which the internal carotid supplies the nose by communication.
 Arteria labiorum orbicularis.

The Veins belonging to the Nose are these :

All the veins already mentioned, as belonging to the eye.

The Nerves which go to the Nose are these :

Nervi olfactorii.
 Nervus orbitarius sive ophthalmicus, a branch of the fifth pair, both immediately and by communication.
 Nervi maxillares superiores, branches of the sixth pair.

Nervi

Nervi motores communes, or the third pair by communication.

Nervus sympatheticus minimus.

Nervus sympatheticus medius, by communication.

The Arteries which go to the Ear are these :

Arteria temporalis, a branch of the external carotid.

Arteria auricularis, a branch of the temporalis.

Arteria occipitalis, by communication.

Arteria vertebralis, by means of the basilaris, which is a continuation of it.

Arteria carotis interna, by communication with the arteria basilaris.

The Veins belonging to the Ear are these :

Vena temporalis.

Vena occipitalis.

Vena cervicalis.

Vena maxillaris; these three being branches of the jugularis externa.

Vena jugularis interna, by several communications.

Sinus petrosus duræ matris.

The Nerves distributed to the Ear are these :

Nervus maxillaris inferior, the third branch of the fifth pair.

Nervus auditorius, the seventh pair.

Nervus sympatheticus minimus, the portio dura of the auditory nerve.

Nervus hypoglossus externus, the ninth pair by communication.

Nervus sub-occipitalis, the tenth pair by communication.

The second cervical pair.

Nervus sympatheticus medius, the eighth pair.

Nervus sympatheticus universalis, commonly called intercostalis.

The Arteries which go to the Mouth, Tongue, &c. are these :

The artery of the chin.

Arteria coronaria sive orbicularis labiorum, both being branches of the external carotid.

Arteria maxillaris interna.
Arteria sub-lingualis.

The Veins belonging to the Mouth, Tongue, &c. are these :

Vena maxillaris externa.
Vena maxillaris interna.
Venæ raninæ. All these are branches of the external jugular.
Vena jugularis interna, by several communications.
Vena gutturalis superior, a branch of the internal jugular.
Vena axillaris, when it sends off the guttural vein.

The Nerves distributed to the Mouth, Tongue, and Salivary Glands, &c. are these :

Nervus maxillaris superior.
Nervus maxillaris inferior, both branches of the fifth pair.
Nervus sympatheticus minimus, or portio dura of the auditory nerve.
Nervus sympatheticus medius, the eighth pair.
The ninth pair, from the medulla oblongata.
The second pair of cervical nerves.
Nervus sympatheticus maximus, by communication.

The cheeks on each side are furnished with arteries and veins from the nearest ramifications of the temporal arteries and veins, and with nerves from the portio dura of the auditory nerves.

THE EXTERNAL PARTS OF THE NECK, VIEWED Laterally.

THE neck in general is divided into the anterior part or throat, and posterior part or nape. The throat begins by an eminence at *a* ; the nape begins at *b*, and terminates by an eminence at *c*. The neck contains the larynx at *a*, a part of the trachea arteria at *d d*, the pharynx at *e*, a part of the œsophagus, the musculi cutanei, sterno-hyoidæi, musculi vertebrales, and a portion of the medulla spinalis.

The

The Arteries which go to the Neck are these :

Arteriæ carotides, in general.
Arteriæ carotides externæ.
Arteriæ carotides internæ.
Arteriæ vertebrales.
Arteriæ cervicales.

The Veins belonging to the Neck are these :

Venæ jugulares, in general.
Venæ jugulares externæ.
Venæ jugulares internæ.
Venæ cervicales.
Venæ vertebrales.

The Nerves distributed to the Neck are these :

Nervi sympathetici minimi, or portio dura of the auditory nerve.
Nervi sympathetici medii, the eighth pair.
Nervi accessorii octavi paris.
The ninth pair.
Nervi sub-occipitales, or the tenth pair.
The seventh cervical pair.
Nervi sympathetici maximi.

THE EXTERNAL PARTS OF THE THORAX, VIEWED Laterally.

By the thorax, we commonly understand all that part of the body which answers to the extent of the sternum, ribs, and vertebræ of the back, both outwardly and inwardly.

The thorax is divided into the anterior part, *a b*, called commonly the breast; the posterior part, *c d*, called the back; and the lateral parts, called the right, *e*, and the left sides. The external parts of the thorax are principally the muscles which cover the ribs and fill the spaces between them. The muscles are the pectorales majores and minores,

minores, serrati majores, serrati posteriores postici, latissimus dorsi, and vertebrales; and to these we may add the muscles which cover the scapula. The internal parts of the thorax are contained in the large cavity of that portion of the trunk which is named the cavity of the breast; this cavity is lined by a membrane named plura, and divided into two lateral cavities by a membranous septum, named mediastinum, which is a duplicature of the plura. These parts are, the heart, pericardium, trunk of the aorta, great arch of the aorta, trunks of the carotid arteries, subclavian arteries, trunks of the vertebral and axillary arteries, the superior portion of the descending aorta, the intercostal arteries, the vena cava superior, vena azygos, subclavian veins, trunks of the jugular, vertebral and axillary veins, a portion of the aspera arteria and of the œsophagus; the ductus lacteus or thoracicus, the lungs, pulmonary artery, pulmonary veins, &c.

The Arteries and Veins which particularly belong to the Thorax are these :

Arteriæ and venæ thoracicæ, superiores and inferiores.

Arteriæ and venæ mammariæ, internæ and externæ.

Arteriæ and venæ intercostales, superiores and inferiores.

Arteriæ and venæ spinales, with the venal sinuses of the canal of the spine.

The Nerves distributed to the Thorax are these :

Nervi sympathetici medii, or eighth pair.

Nervi sympathetici universales, commonly called intercostales.

The last cervical pair.

The twelve dorsal pairs.

Nervi diaphragmatici.

The cavity of the thorax is terminated downward by the diaphragm, which parts it from the abdomen.

THE EXTERNAL PARTS OF THE ABDOMEN, VIEWED Laterally

THE abdomen begins immediately under the thorax, and terminates at the bottom of the pelvis of the ossa innominata: its circumference or outer surface is divided into regions, of which there are three anterior, that is, the epigastric or superior region, the umbilical or middle region, and the hypogastric or lower region: there is but one posterior region, named regio lumbaris.

The cavity of the abdomen, formed by the parts already mentioned, all which are covered by the skin and membrana adiposa, is lined on the inside by a particular membrane, called peritonæum: it is separated from the cavity of the thorax by the diaphragm, and terminated below by the musculi levatores ani.

This cavity contains the intestines.

The principal Arteries of the Abdomen are these:

Arteria epigastrica superior.
Arteria inferior.
Arteria cœliaca.
Arteria mesenterica superior.
Arteriæ renales, called formerly emulgentes.
Arteriæ spermaticæ.
Arteria mesenterica inferior.
Arteriæ lumbares.
Arteriæ iliacæ.
Arteriæ hypogastricæ.
Arteriæ epigastricæ inferiores.
Arteriæ hæmorrhoidales.
Arteriæ pudicæ.

The principal Veins of the Abdomen are these:

Venæ renales.
Venæ lumbares.

, Venæ

Venæ spermaticæ.
 Venæ hypogastricæ.
 Vena portæ ventralis.
 Vena portæ hepaticæ.
 Vena mesaraica major.
 Vena splenica.
 Vena mesaraica minor sive hæmorrhoidalis interna.

The principal Nerves of the Abdomen are these :

Nervi stomachici, formed by the extremity of the sympathetici medii, or eighth pair.
 Nervi sympathetici maximi, the inferior portion.
 The two semilunar or plexiform ganglions.
 Plexus stomachicus.
 Plexus hepaticus.
 Plexus splenicus.
 Plexus renalis.
 Plexus mesentericus superior.
 Plexus mesentericus inferior.
 Nervi lumbares.
 Nervi sacri.
 Nervi crurales, their origin.
 Nervi sciatici, their origin.

THE EXTERNAL PARTS OF THE UPPER EXTREMITIES, VIEWED
 Laterally.

THE whole arm is divided, as in the skeleton, into the shoulder, *a*; the arm, properly so called, *b*; the fore-arm, *c*; and the hand, *d*: but to these we must here add the axilla or arm-pit, *e*; the elbow, *f*; the fold of the arm, *g*. The axilla, *e*, is formed by the corresponding edges of the pectoralis major, and latissimus dorsi. The elbow, *f*, answers to the olecranon: the fold of the arm, *g*, is on the fore side of the articulation of the os humeri, with the bones of the fore-

fore-arm: the arm, properly so called, is principally covered, from the shoulder downward, by the biceps brachialis, and the three anconæi; the fore-arm is furnished with those muscles which move the radius on the ulna, and carpus on the fore-arm: the hand has very few considerable fleshy parts.

The Arteries of the whole Upper Extremity are these:

Arteria axillaris.
 Arteria humeralis.
 Arteria scapularis.
 Arteria articularis.
 Arteria brachialis.
 Arteria collateralis.
 Arteria cubitalis.
 Arteria radialis.
 Arteria interossea anterior.
 Arteriæ interosseæ posteriores.
 The arterial arches in the palm of the hand.

The Veins of the whole Upper Extremity are these:

The cephalica minor.
 Vena jugularis externa, by communication with the small cephalica.
 Vena axillaris.
 Venæ musculares,
 Venæ scapulares.
 Vena brachii cephalica,
 Vena brachii basilica.
 Venæ satellites arteriæ brachialis.
 Vena profunda superior.
 Vena mediana, that is, mediana cubitalis, mediana basilica, mediana radialis sive cephalica, and mediana media or major.
 Vena profunda cubiti,
 Vena basilica cubiti sive cubitalis.
 Venæ cubiti satellites.
 Vena cephalica pollicis.
 Vena salvatella sive auricularis.

U

The

The Nerves of the whole Upper Extremity are these :

Nervi brachiales in general, formed by the last four or five cervical and first dorsal pairs.

Nervus musculo-cutaneus.

Nervus medianus.

Nervus cubitalis.

Nervus cutaneus internus.

Nervus radialis.

Nervus axillaris sive articularis.

THE EXTERNAL PARTS OF THE LOWER EXTREMITIES, VIEWED
LATERALLY.

THE lower extremities of the whole body are divided, as those of the skeleton, into the thigh, *a*; leg, *b*; and foot, *c*. The thigh begins anteriorly on one side of the fold of the groin, at *d*, and posteriorly at *D*, near the posterior and inferior part of the ischium; and terminates laterally at *e*, on the centre of motion in the joint of the knee; anteriorly, at the patella *f*, on the knee; and posteriorly, at the poples or ham, *g*. It is formed chiefly by the muscles which surround the os femoris, and are themselves invested by the fascia lata, that is, the glutæus maximus, two vasti, crureus, biceps, triceps, semi-membranosus, semi-tendinosus, gracilis internus, gracilis anterior or rectus, and sartorius.

The leg begins anteriorly at the knee, below the patella, and posteriorly at the poples; and it terminates below at the centre of motion on the lower head of the tibia, or ancle, at *h*.

The foot begins where the leg ends, and terminates at the ends of the toes: the fleshy parts are not more considerable on the foot than on the hand.

The Arteries of the whole Lower Extremity are these:

Arteria obturatrix, a branch of the hypogastrica.

Arteria glutæa, a branch of the hypogastrica.

Arteria sciatica, by communication.

Arteria

Arteria pudica, by communication.
 Arteria cruralis.
 Arteria poplitea.
 Arteria tibialis anterior.
 Arteria tibialis posterior.
 Arteria peronæa.
 Arteria plantaris.

The Veins of the whole Lower Extremity are these:

Vena obturatrix.
 Vena glutæa.
 Vena cruralis.
 Vena magna saphena.
 Vena sciatica.
 Vena parva saphena, sive saphena externa.
 Vena poplitea.
 Vena tibialis.
 Vena peronæa.
 Vena plantaris.

The Nerves of the whole Lower Extremity are these:

Nervus cruralis, formed by a complication of the five lumbares, especially of the first four.
 Nervus sympatheticus maximus, by communication with the nervi lumbares and sacri.
 Nervus sciaticus, formed by the union of the last two lumbares, and first three sacri.
 Nervus popliteus.
 Nervus sciaticus internus, sive popliteus internus.
 Nervus sciaticus externus, sive popliteus externus.
 Nervus plantaris externus.
 Nervus plantaris internus.

A DESCRIPTION OF THE COMMON INTEGUMENTS OF THE BODY.

ALL the parts of the body of a common fowl are invested by several common and universal coverings, to which anatomists give the name of integuments; that is, the cutis or skin, the cuticula or scarf-skin, the nails, hairs, and feathers; with the membrana adiposa.

The Cutis or Skin.

The skin is a substance of very large extent, made up of several kinds of tendinous, membranous, vascular, nervous, and muscular fibres: it is not easily torn, may be elongated in all directions, and afterwards recovers itself, as we see in fat persons, in women with child; and it is thicker and more compact in some places than in others. The outer surface of this substance is furnished with small eminences, which anatomists call papillæ, in the different parts of the body, and they may be distinguished into several kinds: the greatest part of them are flat, of different breadths, and separated by sulci, which form a kind of irregular lozenges: the papillæ appear to be surrounded at their bases by a soft mucilaginous and pretty viscid substance, which fills the interstices between them, and represents a kind of net-work or sieve, the meshes of which surround each papilla. This substance is commonly called corpus reticulare or mucosum. The origin of this reticular or mucous body has not hitherto been sufficiently explained; and it has not been determined, whether it forms an universal integument, or whether it belongs more properly to the skin than to the papillæ or epidermis. It is probable that this vascular texture, these papillæ or villi, are the external absorbents or mouths of the lymphatic vessels, and excretory ducts of the vessels of perspiration.

The inner surface of the skin is covered by very small tubercles, called commonly cutaneous glands: these tubercles are partly fixed in small fossulæ in the substance of the skin, which answer to the same number of small cavities in the corpus adiposum: their excretory ducts

ducts open on the outer surface of the skin, sometimes in the papillæ, and sometimes on one side of them. The greatest part of them furnishes sweat and other fatty, oily matters, of different thicknesses. By macerating the skin in water, these corpuscles become more visible. The late M. Duverney demonstrated to the Royal Academy, that the structure of some of these cutaneous glands resemble the circumvolutions of small intestines plentifully stored with capillary vessels. The illustrious M. Morgagni, Professor at Padua, has given the name of glandulæ sebaceæ to those which furnish the unctuous matter above mentioned. Besides these corpuscles, there are other solid bodies, almost of an oval figure, contained in the substance of the skin; these are the roots or bulbs from whence the hairs, scales, or feathers arise; some of them are situated within the inner surface of the skin.

The Cuticula, Epidermis, or Scarf-Skin.

The outside of the skin is covered by a thin transparent web, closely joined to it, which is called epidermis, cuticula, or the scarf-skin: the substance of the cuticula appears to be very uniform on the side next the skin, and to be composed on the other side of a great number of very fine squamous laminæ, without any appearance of a fibrous or vascular texture, except some small filaments by which it is connected to the papillæ, and which perhaps are detached from thence: this substance is very solid and compact, but yet capable of being extended and thickened, as we see by steeping it in water, and by the blisters raised on the skin by vesicatories or any other means; and from thence it would seem that it is of a spongy texture. It yields very much in swellings, but not so much as the skin, without breaking or cracking. The origin of the epidermis is as obscure as its regeneration is evident, sudden, and surprising; for, let it be destroyed ever so often, it will grow again: hard and reiterated frictions loosen it insensibly, and presently afterward a new stratum arises, which thrusts the first outward, and may itself be loosened and thrust outward by a third stratum, and so on.

The

The epidermis adheres very closely to the cutaneous papillæ, from which it may be separated by boiling; or, which is a much better way, by steeping for a long time in cold water: it adheres still closer to the corpus reticulare, which is easily raised along with it: and they seem to be true portions or continuations of each other. The epidermis covers the skin through its whole extent, except at the places where the nails lie: it is marked with the same furrows and lozenges as the skin, and has the same openings and pores; and though it may be said to pass the bounds of the skin, where it is continued inward through the great openings, yet at these places it only loses the name of epidermis. When we examine narrowly the small pores, or holes, through which the sweat passes, the epidermis seems to enter these, in order to complete the excretory tubes of the cutaneous glands. The fossulæ of the hairs have likewise the same productions of the epidermis, and it seems to give a sort of coat or bark to the hairs, &c. themselves: lastly, the almost imperceptible ducts of the cutaneous pores are lined with it. Having macerated the skin for a long while in water, the epidermis, with all its elongations, may be separated from it, with even the hairs, scales, feathers, and bulbs.

The Membrana Adiposa, and Fat.

This is not merely a single membrane, but a congeries of a great number of membranous laminæ, joined irregularly to each other at different distances, so as to form numerous interstices of different capacities, which communicate with each other: these interstices have been named cellulæ, and the substance made up of them, the cellular substance. The thickness of the membrana adiposa is not the same all over the body, and depends on the number of laminæ of which it is made up. It adheres very closely to the skin, runs in between the muscles in general, and between their several fibres in particular, and communicates with the membrane which lines the thorax and abdomen: these cellular interstices are so many little sinuses, filled with an unctuous or oily juice, more or less liquid, which is called fat; it is secreted by the glandular membrane that surrounds it, deposited by its excretory ducts, and occasionally taken up by its

its absorbents, in a similar manner to the membranes in general, giving out and taking up the lubricating fluids that lie betwixt them. Fat is more fluid in living than in dead bodies; it melts with the heat of the fingers in handling it: this substance increases in quantity in the body by rest and good living; and, on the contrary, diminishes by hard labour and a spare diet.

The Nails.

The nails are looked upon by some as productions of the cutaneous papillæ; and by others, as a continuation of the epidermis. This last opinion agrees with experiments made by maceration, by means of which the epidermis may be separated entire from the hands and feet, like a glove or sock: in this experiment we see the nails part from the papillæ, and go along with the epidermis, to which they remain united; and yet their substance and structure appear to be very different from that of the epidermis: their substance is like that of horn, and they are composed of several planes of longitudinal fibres, soldered together; these strata end at the extremity of each toe, and are all nearly of an equal thickness, but of different lengths; the external plane or stratum is the longest, and the rest decrease gradually, the innermost being the shortest; so that the nail increases in thickness from its union with the epidermis, where it is thinnest, to the end of the toes where it is thickest: the graduated roots of all the fibres, of which these planes consist, are hollowed for the reception of the same number of very small oblique papillæ, which are continuations of the true skin, which, having reached the root of the nail, forms a semilunar fold, in which that root is lodged; after this semilunar fold, the skin is continued on the whole inner surface of the nail, the papillæ insinuating themselves in the manner already said. The fold of the skin is accompanied by the epidermis to the nail anteriorly, to which it adheres very closely: the extremity of the nail does not adhere to any thing, and still continues to grow. The feet of the fowl are covered with scales of various shapes and sizes, as at c, from the heel to the ends of the toes, the production of which is similar to that of the nails.

The

The Hairs and Feathers.

The hairs and feathers belong as much to the integuments as the nails: their roots and bulbs lie toward that side of the skin which is next the membrana adiposa: the trunk, or beginning of the stem, perforates the skin, and the rest of the stem advances beyond the outer surface of the skin to a certain distance, which is very various in the different parts of the body. When the different hairs are examined by a microscope, we find the roots more or less oval, the largest extremity being either turned toward, or fixed in the corpus adiposum; the smallest extremity is turned toward the skin, and in some places fixed in the skin: this oval root is covered by a whitish strong membrane, in some measure elastic, and it is connected either to the skin, to the corpus adiposum, or to both, by a great number of very fine vessels and numerous filaments. Within the root we observe a kind of glue, some very fine filaments of which advance toward the small extremity, where they unite and form the stem, which passes through this small extremity to the skin: as the stem passes through the root, the other membrane is elongated in form of a tube, which closely invests the stem, and is entirely united to it; the stem having reached the surface of the skin, pierces the bottom of a small fossula between the papillæ, or sometimes a particular papilla, and there it meets the epidermis, which seems to be invested round it, and to unite with it entirely: a sort of unctuous matter transudes through the sides of the fossula, which is bestowed on the stem, and accompanies it more or less, as it runs out from the skin, in form of a hair or feather, &c.



TABLE

